THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1849.

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TO READERS AND CORRESPONDENTS.

The following works have been received:—

Observations upon Bulam, Vomito-Negro or Yellow Fever, with a Review of "A Report upon the Diseases of the African Coast. By Sir William Burnett, and Dr. Bryson," proving its highly contagious powers. By Sir William Pym, R. C. H., Inspector-General of Hospitals. London, John Churchill, 1848. (From Dr. M'William.)

An Account of the Origin, Spread, and Decline of the Epidemic Fevers of Sierra Leone; with Observations on Sir William Pym's Review of the "Report on the Climate and Diseases of the African Station." By Alexander Bryson, M. D., R. N. London, Henry Renshaw, 1849. (From Dr. M'William.)

Copy of a Letter from Sir William Pym, Superintendent-General of Quarantine, to the Lords of the Privy Council, containing Observations upon Dr. King's Report upon the Boa Vista Fever in 1845. London, 1848. (From Dr. M'William.)

Clinical Lectures on the Physical Diagnosis of Phthisis, delivered at the Hospital for Consumption and Diseases of the Chest. By Richard Payne Cotton, M. D., M. R. C. P. London, 1849. (From the Author.)

Eighteenth and Nineteenth Annual Reports of the Belfast District Asylum for the Insane Poor of the Counties of Antrim and Down, and county of the town of Carrickfergus, for the years ending 31st March, 1848 and 1849. Drawn up by the Resident Physician. Belfast, 1848–1849. (From Robert Stewart, M. D., R. P.)

Transactions of the Provincial Medical and Surgical Association. Vol. xvi. Part ii. London, 1849. (From the Association.)

Principles of Mechanics, Machinery, and Engineering. By Julius Weisbach, Professor of Mechanics and applied Mathematics in the Royal Mining Academy at Frieberg. First American edition. Edited by Walter R. Johnson, Civil and Mining Engineer. In two vols. Illustrated with 813 engravings on wood. Vol. II. Applied Mechanics. Philadelphia, Lea & Blanchard, 1849. (From the Publishers.)

The Dispensatory of the United States of America. By George B. Wood, M. D., Prof. Mat. Med. and Pharm. in University of Pennsylvania, and Franklin Bache, M. D., Prof. Chem. in Jefferson Medical College. Eighth edition, carefully revised. Philadelphia, Grigg, Elliot & Co., 1849. (From the Authors.)

A Dissertation on the Practice of Medicine. Containing an Account of the Causes, Symptoms, and Treatment of Diseases, and adapted to the use of Physicians and Families, By Tomlinson Fort, M. D. Milledgeville, Ga., 1849. (From the Author.)

Proceedings of the Ohio Medical Convention, held at Columbus, on the 5th of June, 1849. Columbus, Ohio, 1849.

Proceedings of the State Medical Convention, held at Raleigh, April, 1849.

And Constitution and Medical Ethics of the Medical Society of the State of North Carolina, then adopted. Raleigh, N. C., 1849.

Cholera: its Causes, Symptoms, and Treatment considered and explained. By J. P. Batchelder, M. D., of New York City. New York, 1849. (From the Author.)

The Pathology and Treatment of Asiatic Cholera, so called. By A. L. Cox, M. D. New York, 1849. (From the Author.)

Lecture on Epidemic Cholera, delivered in the Hall of the Phil. Coll. Med., in May, 1849, at the Request of the Class. By T. D. Mitchell, M. D., Prof. Theory and Prac. Med. Philadelphia, 1849.

Report on the Cholera in Paris, published by authority of the French Government. Translated from the original and printed, by recommendation of the Board of Health and the Academy of Medicine of the City of New York. New York, S. S. & W. Wood, 1849. (From the Publishers.)

The Pathology and Treatment of Cholera: with an Appendix, containing his latest Instructions to Planters and Heads of Families (remote from medical advice), in regard to its Prevention and Cure. By Saml. A. Cartwright, M. D. New Orleans, 1849.

A Practical Treatise on Asiatic Cholera, which every person should read, as it may be the means of saving the lives of thousands. By Thompson McGown, M. D., Graduate of Transylvania University. Philadelphia, 1849. (From the Author.)

Sixty-Second Annual Report of the Regents of the University of the State of New York. Made to the Legislature, March 1st, 1849. Albany, 1849. (From Dr. T. R. Bule.)

The Twenty-Fifth Annual Report of the Officers of the Retreat for the Insane, at Hartford, Conn. April, 1849. (From John S. Butler, M. D.)

Tenth Annual Report of the Directors and Superintendent of the Ohio Lunatic Asylum to the 47th General Assembly of the State of Ohio, for the year 1848. Columbus, 1849. (From Wm. M. Awl, M. D.)

Valedictory Address delivered to the Class in the Medical College of Ohio, at the close of the Session of 1848–49. By L. M. Lawson, M. D., Prof. of Mat. Med. and Therap. and Gen. Path. Published by the Class. Cincinnati, 1849. (From the Author.)

An Essay on Intestinal Auscultation. By Charles Hooker, M. D., Prof. of Anat. and Phys., in Yale College. Boston, 1849. (From the Author.)

Circular of the Medical Faculty of Harvard University, including Reports of Cases, in the Massachusetts General Hospital. Boston, 1849.

Annual Announcement of the St. Louis University, Session 1849–50. St. Louis, 1849.

The following Journals have been received in exchange:—

Revue Médico-Chirurgicale de Paris. Sous la Direction of M. Malgaigne. June, July, August, 1849.

Gazette Médicale de Paris. March, April, May, June, and July, 1849 (except Nos. 18 and 29).

Revue Médicale Française et Etrangère. January, February, March, April, 1849.

Annales Médico-Psychologiques. January, April, 1849.

Annales de Thérapeutique Médicale et Chirurgicale et de Toxicologie. Publiées par M. le Docteur Rognetta. February, March, 1849.

Journal des Connaissances Médico-Chirurgicales. Publie par Le Dr. A. Martin-Lauzer. April, May, June, July, 1849.

Journal des Connaissances Médicales Pratiques et de Pharmacologie. March, April, May, June, July, 1849.

The Edinburgh Medical and Surgical Journal. July, 1849.

The London Medical Gazette. June, July, August, 1849.

The British and Foreign Medico-Chirurgical Review. July, 1849.

Monthly Journal and Retrospect of the Medical Sciences. Edited by Geo. E. Day, F. R. C. P., A. Fleming, M. D., and W. T. Gairdner, M. D. July, August, and September, 1849.

London Journal of Medicine, a Monthly Record of the Medical Sciences. July, August, and September, 1849.

The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. July, 1849.

The Half-Yearly Abstract of the Medical Sciences. Edited by W. H. Ranking, M. D. January, June, 1849.

Dublin Medical Press. June, July, and August, 1849.

The Dublin Quarterly Journal of Medical Sciences. August, 1849.

Provincial Medical and Surgical Journal. Edited by a Committee of the Worcester Council. Foreign Editor, Dr. Ranking. June, July, and August, 1849.

The Medical Times. June, July, and August, 1849.

The British American Journal of Medical and Physical Science. Edited by Archibald Hall, M. D. June, July, August, 1849.

The New Jersey Medical Reporter and Transactions of the New Jersey Medical Society. Edited by Joseph Parrish, M. D. July, 1849.

The American Journal of Insanity. Edited by the Officers of the New York State Lunatic Asylum. Utica, July, 1849.

The Boston Medical and Surgical Journal. Edited by J. V. C. Smith, M. D. July, August, and September, 1849.

The Medical Examiner. Edited by Drs. F. G. Smith, and David H. Tucker. July, August, and September, 1849.

The New Orleans Medical and Surgical Journal. Edited by A. Hester, M. D. July, September, 1849.

The New York Journal of Medicine and the Collateral Sciences. July, Sept., 1849.

The Western Lancet and Hospital Reporter. Edited by Drs. L. M. Lawson, and John P. Harrison. July, August, September, 1849.

The American Journal of Science and Arts. Conducted by Profs. B. Silliman, and B. Silliman, Jr., and James D. Dana. July, September, 1849.

The Charleston Medical Journal and Review. Edited by P. C. Gaillard, M. D., and H. W. Desaussure, M. D. July, September, 1849.

Transylvania Medical Journal. Edited by E. L. Dudley, M. D. July, 1849.

The North-Western Medical and Surgical Journal. Edited by John Evans, M. D., and E. G. Meek, M. D. July, 1849.

The Southern Medical and Surgical Journal. Edited by PAUL F. EVE, M. D. July, August, and September, 1849.

The Ohio Medical and Surgical Journal. Edited by JOHN BUTTERFIELD, M. D. July, September, 1849.

The Western Journal of Medicine and Surgery. Edited by L. P. YANDELL, M. D., and T. S. BELL, M. D. July, August, September, 1849.

The American Journal of Pharmacy, published by authority of the Philadelphia College of Physicians. Edited by JOSEPH CARSON, M. D., and W. PROCTER, JR. July, 1849.

Buffalo Medical Journal and Monthly Review of Medical and Surgical Science. Edited by AUSTIN FLINT, M. D. June, July, August, and September, 1849.

Communications intended for publication, and Books for Review, should be sent, *free of expense*, directed to ISAAC HAYS, M. D., Editor of the American Journal of the Medical Sciences, care of Messrs. Lea & Blanchard, Philadelphia. Parcels directed as above, and sent (carriage paid) under cover, to John Miller, Henrietta Street, Covent Garden, *London;* or to Wiley & Putnam, *New York;* or W. D. Ticknor, *Boston;* or M. Hector Bossange, Lib. quai Voltaire, No. 11, *Paris*, will reach us safely and without delay. We particularly request the attention of our foreign correspondents to the above, as we are often subjected to unnecessary expense for postage and carriage.

All remittances of money, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Lea & Blanchard.

☞ The advertisement-sheet belongs to the business department of the Journal, and all communications for it should be made to the publishers.

New Publications.—Messrs. Lea and Blanchard have just published the very valuable Treatise on the Diseases of the Bones, by Edward Stanly, Esq., Surgeon to St. Thomas's Hospital.

The same publishers have, we learn, just ready for publication, a new edition, with revisions, of Colombat on the Diseases of Females, translated by Prof. Meigs.

Also, the excellent work of Jongh on the Cod Liver Oil, translated, with many additions, by Edward Carey, M. D.

Likewise, the very valuable new work of Dr. Churchill, on the Diseases of Infants and Children. We have seen a large portion of this work, and feel confident that it will fully sustain, if not even increase, the high reputation of its author as a learned and judicious writer.

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XIV. Experimental and Practical Researches on the Structure and Function of Blood Corpuscles; on Inflammation, and on the Origin and Nature of Tubercles in the Lungs. By William Addison, F. L. S. (Transactions of Provincial Medical and Surgical Association, Vol. XI. p. 233.) London, 1843.

The Actual Process of Nutrition in the Living Structure demonstrated by the Microscope; and the Renewal of the Tissues and the Secretions from the Blood thereby illustrated. By William Addison, F. L. S. (Transactions of the Provincial Medical and Surgical Association, Vol. XII. p. 235.) 1844.

On Healthy and Diseased Structure, and the True Principles of Treatment for the Cure of Disease, especially Consumption and Scrofula; founded on Microscopical Analysis. By William Addison, M. D., F. R. S., Licentiate of the Royal College of Physicians. 8vo. pp. 320. London: Churchill, 1849. - - - - - - - - 411

XV. On Gout—its History, its Causes, and its Cure. By William Gairdner, M. D. 12mo. pp. 232. London, 1849. - - - - 422

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XVI. A Theoretical and Practical Treatise on Human Parturition. By H. Miller, M.D. Professor of Obstetrics and the Diseases of Women and Children, in the Medical Department of the University of Louisville. Louisville, 1849: 8vo. pp. 463. - - - - - - 433

XVII. A Dissertation on the Practice of Medicine, containing an Account of the Causes, Symptoms, and Treatment of Diseases, and adapted to the Use of Physicians and Families. By Tomlinson Fort, M. D. Milledgeville, Georgia, 1849: 8vo. pp. 740. - - - - - 434

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XIX. Clinical Lectures on the Physical Diagnosis of Phthisis. By Richard Payne Cotton, M.D. London, 1849: pp. 23. - - - - 436

XX. Epidemic Cholera—Its History, Causes, Pathology, and Treatment. By C. B. Coventry, M. D. Professor of Obstetrics and Medical Jurisprudence in the Medical Institution of Geneva College; Professor of Physiology and Medical Jurisprudence in the University of Buffalo. Buffalo, 1849: 12mo. pp. 119.

A Practical Treatise on Asiatic Cholera, which every person should read, as it may be the means of saving the lives of thousands. For the benefit of the public it is issued in Pamphlet form; taken from a new Medical work, now being published on Diseases of the South. By Thompson McGown, M. D. Graduate of Transylvania University; Member of the Lexington Medical Society, and a Practitioner of the South. Philadelphia, 1849: 8vo. pp. 30.

Letters upon Cholera. By Frank A. Ramsey, M.D. Knoxville, Tennessee, 1849: 8vo. pp. 30.

Cholera—Its Causes, Symptoms, and Treatment considered and explained. By I. P. Batchelder, M.D., of New York City. New York, 1849; 12mo. pp. 45.

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Lecture on Epidemic Cholera, delivered in the Hall of the Philadelphia College of Medicine, in May 1849, at the Request of the Medical Class. By Thomas D. Mitchell, M. D. Professor of the Theory and Practice of Medicine in the Philadelphia College of Medicine, and late Professor in the Medical Department of Transylvania University, Lexington, Kentucky. Philadelphia, 1849: 8vo. pp. 22.

The Pathology and Treatment of Asiatic Cholera, so called. By A. L. Cox, M. D. New York, 1849: 12mo. pp. 54.

The Pathology and Treatment of Cholera: with an Appendix, containing his latest Instructions to Planters and Heads of Families, remote from medical advice, in regard to its Prevention and Cure. By Samuel A. Cartwright, M. D. New Orleans, 1849: 8vo. pp. 40. - - - 437

XXI. The Treatment of Rheumatic Diseases by Lemon Juice; with Illustrative Cases from Hospital Practice. By G. Owen Rees, M. D., F.R.S., &c. &c. London, Longman & Co., 1849: pp. 38, 8vo. - - - 443

XXII. Report on the Practical Operation of the Law relating to the Importation of Adulterated and Spurious Drugs, Medicines, &c. By M. J. Bailey, M. D. Special Examiner of that Class of Merchandise in the United States Customs, at the Port of New York. Read before the New York Academy of Medicine, June 6th, 1849. Published by order of the Academy. New York, 1849; 8vo. pp. 20. - - - - 446

XXIII. The Dispensatory of the United States of America. By George B. Wood, M. D., Professor of Materia Medica and Pharmacy in the University of Pennsylvania, &c. &c., and Franklin Bache, Professor of Chemistry in Jefferson Medical College of Philadelphia. Eighth edition, carefully revised. Philadelphia, Grigg, Elliot & Co., 1849: 8vo. pp. 1380. - - - - - - - - - 450

XXIV. A Dictionary of Dental Science, Biography, and Medical Terminology. By Chapin A. Harris, M. D., D. D. S., Professor of the Principles and Practice of Dental Surgery in the Baltimore College, &c. &c. Philadelphia, Lindsay & Blakiston, 1849: 8vo. pp. 780. - - 450

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ARTICLE I.—*Statistics of the Mortality following the Operation of Tying the Femoral Artery.* By GEORGE W. NORRIS, M. D., Surgeon to the Pennsylvania Hospital.

THE following table of Ligature of the Femoral Artery, is drawn out upon a plan similar to that which I adopted in the 10th, 13th, and 14th volumes of this Journal, to show the mortality, accidents, &c., which follow the operations of ligature of the subclavian, iliac, and carotid vessels. They are parts of an extensive series, most of which I collected some years since, and which I have been in the practice of adding to, as I have met with cases in my reading. For the addition of some of those contained in the present table, however, I am indebted to the kindness of my friend, Mr. Thomas Greeves; and his industry and accuracy have, also, rendered those which had been collected by myself more complete in details than they otherwise would have been. The tables now offered, show strikingly the dangers attendant upon the Hunterian operation, for what appears to be the most common form of external aneurism; and, inasmuch as it is that to which the treatment by compression is more particularly adapted, I have added to it a tabular statement of the cases treated by the latter method, taken from Mr. Bellingham, together with such others as have come to my knowledge since the issue of his valuable little work from the press.

No.	Surgeon.	Sex.	Age.	Right or left side.	Disease or injury.	Duration of disease.	Ligature separated.
1	J. Hunter	Male	45		Popliteal aneurism	3 years	Some on 15th day
2	J. Hunter	Male	40		Popliteal aneurism		14th day
3	J. Hunter	Male	35		Popliteal aneurism		14th day
4	J. Hunter	Male	36		Popliteal aneurism		29th day
5	J. Hunter	Male	42	Left side	Popliteal aneurism		11th day
6	Lynn	Male	25		Popliteal aneurism		13th day
7	Birch	Male	43	Right side	Femoral aneurism		
8	Cline	Male			Popliteal aneurism		Removed 9th day
9	Kast	Male	16		Femoral aneurism from wound	3 days	
10	Forster	Male	35		Popliteal aneurism		17th day
11	Earle	Male	50	Left side	Popliteal aneurism		15th day
12	Chopart			Left side	Popliteal aneurism		
13	Deschamps	Male	34	Left side	Popliteal aneurism	6 months	30th and 31st days*
14	Deschamps	Male	42	Left side	Popliteal aneurism		
15	Forster	Male	37	Left side	Popliteal aneurism	14 months	22d day
16	Deschamps	Male	32	Left side	Popliteal aneurism		
17	Forster	Male	37	Right side	Femoral aneurism	9 months	10th day
18	Home	Male	36		Popliteal aneurism		12th day
19	Pelletan	Male	60		Popliteal aneurism	15 days	
20	Harris	Male	32	Right side	Popliteal aneurism		11th day
21	Scarpa	Male	33	Right side	Popliteal aneurism		16th day
22	Home	Male	33	Right side	Popliteal aneurism	6 weeks	
23	Home	Male	33	Left side	Popliteal aneurism		16th day
24	Knight	Male	35	Left side	Popliteal aneurism		30th day
25	Home	Male	50		Popliteal aneurism		
26	Pelletan	Female	28	Right side	Popliteal aneurism		
27	Scarpa	Male	46	Left side	Popliteal aneurism	9 years	18th day
28	Scarpa	Male	42	Right side	Popliteal aneurism	6 months	18th day
29	Pelletan	Male	70	Right side	Popliteal aneurism		Remov'd 25th and 26th days
30	Pelletan	Female	34		Popliteal aneurism		Removed on 22d day
31	A. Cooper	Male	27		Popliteal aneurism	5 months	24th day
32	A. Cooper	Male	29	Right side	Popliteal aneurism	4 months	14th and 15th days*
33	Scarpa	Male	34	Left side	Femoral aneurism	25 months	14th day
34	Scarpa	Male	46	Right side	Popliteal aneurism	5 months	21st day
35	Mursinna	Male	54		Popliteal aneurism	7 months	
36	Blizard	Male	45		Popliteal aneurism	6 months	
37	Simpson	Male	28	Right side	Popliteal aneurism	2 months	
38	At Deal Hospital	Male			Popliteal aneurism	2 months	12th and 14th days*
39	Andrews			Right side	Popliteal aneurism	2 months	12th and 13th days*

* Double ligature.

Date of operation.	Result.	Period of death.	Cause of death.	Work.
December, 1785	Cured			Trans. of a Soc. for Improvement of Med. and Chirurg. Knowledge, vol. i.
	Died	26th day	Hemorrhage	do do do vol. i.
	Cured			do do do vol. i.
	Cured			do do do vol. i.
	Cured			do do do vol. i.
	Cured			do do do vol. i.
Nov. 3d, 1786	Died	11th day	Hemorrhage	do do do vol. i.
	Died		Attacked by fever, of which he died	do do do vol. i.
May 28th, 1786	Cured			Massachusetts Med. Comm., 1790, vol. i.
Aug. 22d, 1791	Cured			Medical Facts and Observations, vol. v.
Jan. 28th, 1792	Cured			Trans. of a Soc. for Improvement of Med. and Chirurg. Knowledge, vol. i.
Mar. 28th, 1792	Died		Gangrene of limb	Obs. on Aneurism. Sydenham Society, 1844.
April 7th, 1792	Cured			do do do
June 19th, 1793	Died	In a few days	Purulent absorption	do do do
June 24th, 1793	Cured			Med. Facts and Obs., vol. v.
Sept. 9th, 1793	Cured			Obs. on Aneurism. Sydenham Society, 1844.
Aug. 11th, 1794	Cured			Med. Facts and Obs., vol. vi.
1794	Cured			Trans. of a Soc. for Improvement of Med. and Chirurg. Knowledge, vol. ii.
April, 1795	Died	7th day	Gangrene of limb	Clin. Chirurgicale, tom. i.
Nov. 15th, 1795	Cured			Trans. of a Soc. for Improvement of Med. and Chirurg. Knowledge, vol. ii.
Mar. 28th, 1796	Cured			On Aneurism. Edin., 1808.
June 9th, 1797	Cured			Trans. of a Soc. for Improvement of Med. and Chirurg. Knowledge, vol. ii.
July 14th, 1797	Cured			do do do vol. ii.
Sept. 29th, 1797	Cured			do do do vol. ii.
May 22d, 1798	Died	12th day	Hemorrhage	do do do vol. ii.
1798	Died	5 months after	Hectic & diarrhœa	Clin. Chirurgicale, tom. i.
April 28th, 1799	Died	37th day	Mortification of sac	On Aneurism.
Feb. 25th, 1800	Cured			do do
Feb., 1801	Died	43d day	Hemorrhage	Clin. Chirurgicale, tom. i.
Dec. 31st, 1801	Cured			do do tom. i.
April 13th, 1802	Cured			Lond. Med. & Phys. Journ., vol. viii.
May 3d, 1802	Cured			do do do vol. viii.
Mar. 3d, 1803	Cured			On Aneurism.
Feb. 25th, 1804	Cured			do do
April 1st, 1804	Died	33d day	Gangrene of limb	do do
July 24th, 1804	Died after amputation		Gangrene of limb	do do
Nov. 23d, 1804	Cured			Lond. Med. & Phys. Journ., vol. ii., N. S.
Mar. 18th, 1805	Died	27th day	Hemorrhage	do do do vol. xvii.
Oct. 19th, 1805	Cured			do do do vol. xvii.

No.	Surgeon.	Sex.	Age.	Right or left side.	Disease or injury.	Duration of disease.	Ligature separated.
40	Dawson	Male	54		Popliteal aneurism	7 months	23d day
41	Hosack	Male	30	Right side	Femoral aneurism	2 months	13th day
42	Dupuytren	Female	62		Ruptured artery with fractured leg		15th day
43	Hutchison	Male	48		Femoral aneurism	5 years	14th day*
44	Ramsden	Male	32	Right side	Femoral aneurism	9 months	14th day
45	Ramsden	Male		Right side	Popliteal aneurism	3 weeks	8th day
46	Ramsden	Male	34	Left side	Femoral aneurism	15 weeks	14th and 15th days
47	Hutchison	Male	32		Popliteal aneurism	3 months	21st day
48	Kirby	Male	33	Left side	Popliteal aneurism		15th day
49	Hosack	Male		Right side	Femoral aneurism from wound	2 months	13th day
50	Onderdonk	Male	40		Popliteal aneurism	1 month	22d and 23d days*
51	Onderdonk				Wounded knee-joint		18th day*
52	Mackesy	Male	38	Right side	Femoral aneurism	1 year	
53	Lawrence	Male			Popliteal aneurism	1 year	18th day
54	Dickinson			Right side	Popliteal aneurism		
55	Dease	Male	26		Popliteal aneurism	6 months	In 24 hours removed
56	Travers				Aneurism of posterior tibial		5th day
57	Crampton	Male	39		Popliteal aneurism	4 weeks	On 3d day removed
58	Browne	Male	25		Popliteal aneurism from wound from necrosed femur	8 days	
59	Browne	Male	27		Aneurism of posterior tibial	2 months	9th and 11th days*
60	Norman	Male	36	Right side	Popliteal aneurism	1 week	15th day
61	Norman	Male	37	Left side	Popliteal aneurism	2 weeks	
62	Kirby	Male	23	Left side	Femoral aneurism		21st day
63	Norman	Male	38	Right side	Popliteal aneurism	3 days	
64	Physick	Male			Varicose aneurism below the knee	12 years	
65	Roberts	Male	32		Popliteal aneurism		In 24 hours removed
66	Dupuytren	Male			Diffused aneurism upper part of leg from gun shot	1 month	20th day
67	Monteath	Male			Popliteal aneurism		30th day
68	Dupuytren	Male	39	Right side	Pulsating tumour of head of tibia		15th day
69	Janson	Male	49		Popliteal aneurism		11th day
70	Adam	Male	30	Left side	Popliteal aneurism	2 months	19th and 21st days*
71	Liston	Male	35	Right side	Popliteal aneurism	3 weeks	22d day
72	Liston	Male	30	Left side	Popliteal aneurism	12 months	17th day
73	Carmichael	Male	40	Right side	Popliteal aneurism		
74	At Meath Hospital	Male			Popliteal aneurism		
75	Todd	Male	30	Right side	Popliteal aneurism	4 months	18th and 19th days*
76	Todd	Male	27	Left side	Popliteal aneurism	2 months	18th day
77	Perry	Male	45	Right side	Femoral aneurism	1 month	

* Double ligature.

Date of operation.	Result.	Period of death.	Cause of death.	Work.
May 11th, 1807	Cured			Edin. Med. & Surg. Journ., vol. iii.
Mar. 31st, 1808	Cured			Amer. Med. and Phil. Reg., vol. iii.
Jan. 3d, 1809	Cured			Leçons Orales, tom. iv.
July 5th, 1810	Cured			Cases, p. 9.
Sept. 24th, 1810	Cured			Practical Observations.
	Cured			do do
	Cured			do do
Feb. 19th, 1811	Cured			Cases.
Feb. 8th, 1813	Cured			do
Mar. 1st, 1813	Cured			Amer. Med. and Phil. Reg., vol. iii.
May 15th, 1813	Cured			do do do vol. iv.
June 17th, 1813	Cured			do do do vol. iv.
Oct. 8th, 1813	Cured			Edin. Med. & Surg. Journ., vol. xi.
Oct., 1813	Cured			Med.-Chirurg. Transactions, vol. vi.
	Died	23d day	Tetanus	Lond. Med. Repos., vol. i.
Feb. 27th, 1815	Cured			Med.-Chir. Trans., vol. vii.
Feb. 23d, 1816	Died	7th day	Hemorrhage	do do do vol. vii.
October 14th	Cured			do do do vol. vii.
Sept. 1st, 1817	Died		Gangrene of limb	Dub. Med. Journ., vol. viii.
Sept. 1st, 1817	Died	41st day	Thoracic inflammation and abscess in the course of the artery	Medico-Chirurgical Review, vol. xxiv.
Oct. 6th, 1817	Cured			Med.-Chir. Trans., vol. x.
June 6th, 1818	Cured			do do do vol. x.
Feb. 20th, 1818	Cured			Cases.
March 7th, 1818	Cured			Med.-Chir. Trans., vol. x.
	Died		Gangrene of limb and hemorrhage	Dorsey's Elements, vol. ii.
June 6th, 1818	Cured			Med-Chir. Trans., vol. xi.
1818	Cured			Leçons Orales, tom. iv.
Feb. 27th, 1819	Cured			Cooper's Surg. Dictionary, 1838.
Mar. 16th, 1819	Cured			Répertoire d'Anat., tom. ii.
July, 1818	Cured			Mélanges de Chirurgie.
April 3d, 1819	Cured			Edin. Med. & Surg. Journ., vol. xviii.
Oct. 1st, 1819	Cured			do do do vol. xvi.
Oct. 5th, 1819	Cured			do do do vol. xvi.
May 25th, 1818	Died	19th day	Phlebitis	Transacts. Coll. of Phys. of Ireland, vol. ii.
1819	Died		Hemorrhage	do do do vol. ii.
Sept. 1st, 1820	Cured			Dub. Hosp. Reports, vol. iii.
Sept. 1st, 1820	Cured			do do do vol. iii.
Jan. 20th, 1821	Cured			Glasgow Medical Journal, vol. iv.

No.	Surgeon.	Sex.	Age.	Right or left side.	Disease or injury.	Duration of disease.	Ligature separated.
78	Gunning	Male	47		Popliteal aneurism	6 weeks	17th day
79	Travers	Male	25	Left side	Popliteal aneurism	7 weeks	19th day
80	Travers	Male	25	Right side	Popliteal aneurism		13th day
81	Travers	Male	31		Popliteal aneurism	2 weeks	18th day
82	Liston	Male	35		Femoral aneurism		
83	A. Cooper	Male	47	Left side	Popliteal aneurism		42d day
84	Travers	Male	32		Popliteal aneurism		
85	Liston	Male	43		Popliteal aneurism	2 months	
86	D. L. Rogers	Male	30		Wound of knee-joint		15th day*
87	Stephenson	Female	90	Left side	Popliteal aneurism	2 months	18th day
88	Mott	Male	34		Compound dislocation of ankle		
89	Key	Male	30	Left side	Popliteal aneurism	6 weeks	
90	Uccelli	Male			Popliteal aneurism		
91	Travers	Male	37		Femoro-popliteal aneurism		
92	Benja	Male	50	Left side	Popliteal aneurism	6 months	24th day*
93	Arnott	Male	34	Left side	Popliteal aneurism	4 months	31st day
94	Dupuytren	Male	22		Varicose aneurism of thigh	6 months	
95	C. Bell	Male	45	Left side	Popliteal aneurism	4 years	
96	Baynham	Male	20		Varicose aneurism of thigh and aneurismal varix near the ankle	3 years	11th day
97	Macfarlane	Male	45	Left side	Popliteal aneurism	7 months	12th day
98	Macfarlane	Male	45	Right side	Popliteal aneurism		
99	Macfarlane	Male	36	Left side	Popliteal aneurism	3 weeks	19th day
100	Macfarlane	Male	42	Left side	Popliteal aneurism	5 weeks	26th day
101	Wright	Male	38	Right side	Popliteal aneurism	1 year	45th day
102	Macfarlane	Male	38	Right side	Aneurism of anterior tibial and popliteal		
103	Ehrmann	Male	43	Right side	Popliteal aneurism	9 months	22d day
104	Lallemand	Male	45	Right side	Pulsating tumour of head of tibia		36th day
105	Dickinson	Male		Right side	Wounded femoral		17th and 24th days*
106	Lisfranc	Male	23		Wounded femoral		10th and 11th days*
107	Carlisle	Male	46	Right side	Popliteal aneurism	2 months	
108	Dupuytren	Male	35		Popliteal aneurism		
109	Dupuytren	Male		Right side	Popliteal aneurism	4 months	17th day
110	Briggs	Male	30		Popliteal aneurism		21st day
111	Pierpont	Male	30		Femoral aneurism	5 weeks	
112	Guthrie	Male	26	Left side	Popliteal aneurism	2 months	17th day
113	Guthrie	Male	33	Left side	Popliteal aneurism	6 weeks	31st day
114	S. Cooper	Male	48	Left side	Popliteal aneurism	5 years	
115	Collis				Popliteal aneurism		17th day

* Double ligature.

Date of operation.	Result.	Period of death.	Cause of death.	Work.
April 27th, 1821	Cured			Guthrie's Diseases of Arteries, 1830.
Nov. 22d, 1822	Cured			Lond. Med. & Phys. Journ., vol. iii., N. S.
April 11th, 1823	Cured			do do do vol. iii., N. S.
Feb. 24th, 1823	Cured			do do do vol. ii., N. S.
April 2d, 1823	Cured			Edin. Med. & Surg. Journ., vol. xxvii.
May 30th, 1823	Died	28th of July	Gangrene of limb	Lectures by Tyrrell.
	Died	4th day	Gangrene of limb	Lond. Med. & Phys. Journ., vol. iii., N. S.
Jan. 25th, 1824	Cured after amputation			Edin. Med. & Surg. Journ., vol. xxvii.
Aug. 4th, 1824	Cured			N. Y. Med. & Phys. Journ., vol. iii.
Aug. 18th, 1824	Cured			Lancet, vol. ii., 1827–28.
Sept. 2d, 1824	Died	7th day	Tetanus	N. Y. Med. & Phys. Journ., vol. iii.
Oct. 4th, 1824	Died	11th day	Gangrene of limb	Lancet, October, 1824.
	Died	26th day	Diarrhœa	Archives Générales, vol. v., 1824.
Jan. 21st, 1825	Died	3d day	Gangrene of limb	Lancet, January, 1825.
Aug. 21st, 1825	Cured			Lond. Med. & Phys. Journ., vol. lv.
Oct. 28th, 1825	Died	12 weeks after	Bursting of aneurism of aorta	do do do vol. lv.
May 17th, 1826	Died	8th day	Gangrene of limb	Méms. de l'Acad. Roy. de Méd., tom. iii.
Feb. 20th, 1826	Died	7th day		Lond. Med. & Phys. Journ., vol. i., N. S., 1826.
Mar. 10th, 1826	Cured			Midland Medical and Surg. Journ., vol. iii.
Mar. 29th, 1826	Cured			Surgical Reports, 1832.
May 14th, 1826	Died		Gangrene of limb	Surgical Reports.
June 2d, 1826	Died after amputation	August 12th	Gangrene of limb	do do
July 9th, 1826	Cured			do do
July 26th, 1826	Cured			Med. Repos., vol. vi., 1828.
Nov. 15th, 1826	Cured			Surgical Reports.
May 11th, 1827	Cured			Répert. d'Anatomie, tom. v.
April 4th	Cured			do do tom. ii.
Mar. 25th, 1828	Cured			Amer. Journ. of Med. Sci., vol. iv., 1829.
June 3d, 1828	Cured			Amer. Journ. of Med. Sci., vol. iv., 1829.
Aug. 9th, 1828	Died	Beginning of September	Gangrene of limb	Lancet, vol. i., 1828–29.
Feb. 20th, 1828	Died	27th day	Gangrene of limb	Lancet, vol. ii., 1828–29.
Feb. 16th, 1829	Died	26th day	Dry gangrene of limb	Med.-Chirurg. Review, vol. xi., N. S., 1829.
March 6th, 1829	Cured			Guthrie's Diseases of Arteries, 1830.
Oct. 4th, 1829	Cured after amputation			Midland Medical and Surg. Journ., vol. ii.
April 10th, 1830	Cured			Med.-Chir. Rev., vol. xiii.
May 15th, 1830	Cured			do do do vol. xiii
April, 1830	Cured after amputation			Med.-Chir. Trans., vol. xvi.
Jan. 22d, 1831	Cured			Cyclop. of Anat. & Physiol., vol. i., p. 236.

No.	Surgeon.	Sex.	Age.	Right or left side.	Disease or injury.	Duration of disease.	Ligature separated.
116	Tyrrell	Male	58		Popliteal aneurism	6 weeks	58th day
117	Mayo	Female	54	Right side	Femoral aneurism	2 months	22d day
118	Moulinié	Male	49		Femoral aneurism	2 years	29th day
119	Syme	Male	25	Left side	Popliteal aneurism	3 weeks	
120	Macfarlane	Male	42		Secondary hemorrhage after amputation of leg		16th day
121	Green	Male	38	Right side	Aneurism of posterior tibial	1 year	39th day
122	Collis	Male	30	Left side	Popliteal aneurism	2 months	
123	Morrison	Male	37	Right side	Femoral aneurism		17th day
124	Morrison	Male	26	Right side	Popliteal aneurism		17th day
125	Collis	Male	38	Right side	Popliteal aneurism	15 years	17th day
126	Collis	Male	38	Left side	Popliteal aneurism	15 years	27th day
127	B. Cooper	Male	41		Comp. fract. femur with rupture of femoral artery		16th day
128	Breschet	Male	32	Right side	Popliteal aneurism		19th day
129	N. R. Smith	Male	30	Left side	Popliteal aneurism	6 months	
130	N. R. Smith	Male	31	Right side	Femoral aneurism		
131	Travers	Male	45		Popliteal aneurism		
132	Barry	Male	44		Popliteal aneurism	2 years	60th day
133	Hayward	Male	28		Popliteal aneurism	3 weeks	16th day
134	Key	Male	36	Right side	Popliteal aneurism	3 months	46th day
135	Key	Male	26	Left side	Popliteal aneurism	5 weeks	28th day
136	Perry	Male	47	Left side	Varicose aneurism of femoral	4 years	
137	At Meath Hospital	Male			Popliteal aneurism		
138	Englehardt	Male	19		Supposed popliteal aneurism	3 weeks	
139	Morrison	Male	33	Left side	Popliteal aneurism		17th day
140	Syme	Male	39	Left side	Popliteal aneurism	4 months	19th day
141	Klingsohr	Male	39		Femoral aneurism		14th day
142	B. Cooper	Male	28	Right side	Popliteal aneurism	2 weeks	11th day
143	Syme	Male	51		Popliteal aneurism	3 months	19th day
144	Busk	Male	37	Left side	Popliteal aneurism	5 weeks	
145	Turner				Popliteal aneurism		
146	Bougard	Male	35		Popliteal aneurism	5 months	
147	Morrison	Male	42	Right side	Popliteal aneurism	12 months	29th day
148	Harris	Male	30	Left side	Varicose aneurism of femoral	15 months	Removed on 22d day
149	Auchinloss	Male		Left side	Popliteal aneurism	2 months	16th day
150	Blandin	Male	29	Right side	Popliteal aneurism		19th day
151	Norris	Male	32	Left side	Pulsating tumour of head of tibia	6 months	17th day
152	Phillips	Male	46	Left side	Popliteal aneurism	20 days	19th day

Date of operation.	Result.	Period of death.	Cause of death.	Work.
Feb. 25th, 1831	Cured			Med.-Chir. Rev., vol. xvi.
May 20th, 1831	Cured			Lond. Med. & Phys. Journ., vol. xi., 1831.
Aug. 23d, 1831	Cured			Journal Hebdomadaire.
Aug. 30th, 1831	Cured			Edin. Monthly Journ., vol. for 1842.
Dec. 19th, 1831	Cured			Surgical Reports, p. 279.
Sept. 21st, 1832	Cured			South's Trans. of Chelius, vol. ii.
Nov. 12th, 1832	Cured			Dub. Med. Journ., vol. v.
Dec. 13th, 1832	Cured			Amer. Journ. of Med. Sci., vol. xix.
Jan. 30th, 1833	Cured			do do do vol. xix.
Nov. 10th, 1833	Cured			Dub. Med. Journ., vol. v.
Dec. 14th, 1833	Cured			do do do vol. v.
February 9th	Cured			Surgical Cases.
February 18th	Died	28th day	Gangrene of limb	Méms. de l'Acad. Roy. de Méd., tom. iii.
August, 1834	Cured			Baltimore Med. and Surg. Journ., vol. ii.
March 4th, 1835	Cured			N. A. Archives of Med. and Surg., vol. ii.
Sept. 5th, 1834	Cured after amputation			On Constitutional Irritation, 1835.
Mar. 27th, 1834	Cured			Lancet, vol. i., 1834–35.
Dec. 27th, 1834	Cured			Boston Med. & Surg. Journ., vol. xii., 1835.
May 26th, 1835	Cured			Guy's Hospital Reports, vol. i.
Oct. 6th, 1835	Cured			do do do vol. i.
Sept. 10th, 1835	Died	6th day	Hemorrhage	Med.-Chir. Trans., vol. xx.
	Died	16th day	Phlebitis	Porter in Cyclop. of Anat., vol. i.
	Died			Gazette Médicale, 1835.
Mar. 23d, 1836	Cured			Amer. Journ. of Med. Sci., vol. xix.
May 9th, 1836	Cured			Edin. Med. & Surg. Journ., vol. xlvi.
July 15th	Cured			Archives Générales, tom. xliv.
July 20th, 1836	Cured			Guy's Hosp. Reports, vol. i.
July 22d, 1836	Cured			Edin. Med. & Surg. Journ., vol. xlvi.
July 24th, 1836	Cured			Lond. Med. Gaz., vol. xix.
	Died after amputation		Gangrene	Edin. Med. & Surg. Journ., vol. xlvi.
1836	Cured			Gaz. Médicale, No. 15, 1844.
Jan. 15th, 1837	Cured			Amer. Journ. of Med. Sci., vol. xxii.
July 11th, 1837	Died	1 month after	Gangrene of limb and hemorrhage	Amer. Journ. of Med. Sci., vol. i., N. S., 1841.
Oct. 8th, 1837	Cured			Lond. Med. Gazette, vol. i., 1842–43.
May 24th, 1838	Cured			Gazette des Hôpitaux, No. 98, 1838.
Sept. 22d, 1838	Cured			Amer. Journ. of Med. Sci., vol. xxv.
	Cured			Lond. Med. Gazette, vol. i., 1838–39.

No.	Surgeon.	Sex.	Age.	Right or left side.	Disease or injury.	Duration of disease.	Ligature separated.
153	Shipman	Male	30		Popliteal aneurism	2 months	20th day
154	Lawrie	Female	23	Left side	Popliteal aneurism	5 months	15th day
155	Lenoir	Male	37	Right side	Popliteal aneurism		17th day
156	Lenoir	Male	49	Left side	Popliteal aneurism	6 months	
157	Bullock	Male	41		Popliteal aneurism	6 months	24th day
158	Syme	Male	26	Left side	Popliteal aneurism	3 months	25th day
159	Lawrie	Male	22	Left side	Popliteal aneurism	2 years	15th day
160	Syme	Male	29	Right side	Popliteal aneurism	1 month	
161		Male			Popliteal aneurism		
162	B. Cooper	Male	33	Right side	Popliteal aneurism	5 weeks	23d day
163	B. Cooper	Male	55	Left side	Popliteal aneurism	18 weeks	23d day
164	B. Cooper	Male	28	Left side	Popliteal aneurism	3 months	
165	Lawrie	Male	31	Right side	Popliteal aneurism	2 months	15th day
166	Syme	Male	33	Right side	Popliteal aneurism	1 month	38th day
167	Gutteriez	Male	25	Left side	Femoral aneurism		18th day
168	Gutteriez	Male	25	Right side	Popliteal aneurism		23d day
169	Syme	Male	17	Left side	Femoral aneurism from wound	3 months	18th day
170	Lizars	Male	46	Left side	Popliteal aneurism	5 months	35th day
171	Syme	Male	62		Hemorrhage after fractured leg		38th day
172	Teale	Male	30	Right side	Popliteal aneurism	1 month	17th day
173	Quain	Male	50	Left side	Popliteal aneurism	18 months	31st day
174	Syme	Male	25	Left side	Popliteal aneurism	3 weeks	37th day
175	Laugier	Male	50		Popliteal aneurism	3 weeks	18th day
176	Quain	Male	35	Left side	Popliteal aneurism	5 weeks	17th day
177	Adams	Male	28		Popliteal aneurism		10th day
178	Mackenzie	Male	18		Hemorrhage		
179	Syme	Male	42	Right side	Popliteal aneurism	6 weeks	25th day
180	Fox	Male	12		Aneurism of anterior tibial from wound	Some weeks	21st day
181	Phillips	Male	53	Right side	Popliteal aneurism	3 weeks	9th day
182	Lawrie	Male	31	Right side	Popliteal aneurism	10 months	
183	Lawrie	Male	30	Right side	Popliteal aneurism		10th day
184	Harrison	Male	42	Right side	Popliteal aneurism		20th day
185	Syme	Male	9		Popliteal aneurism	2 years	14th day
186	Nottingham	Male	43	Right side	Popliteal aneurism	7 months	24th day
187	Nelaton	Male			Pulsating tumour of intern. condyle of femur		
188	Syme	Male	32	Left side	Popliteal aneurism	5 months	21st day
189	Syme	Male	32	Right side	Popliteal aneurism		
190	Hancock	Male		Left side	Popliteal aneurism	10 weeks	15th day
191	A. E. Hosack	Male	55		Popliteal aneurism		26th day
192	Norris	Male	35	Left side	Popliteal aneurism	6 months	26th day

Date of operation.	Result.	Period of death.	Cause of death.	Work.
June 18th, 1839	Cured			Boston Med. & Surg. Journ., vol. xxiv.
Sept. 22d, 1839	Cured			Lond. Med. Gazette, vol. i., 1842–43.
Oct. 3d, 1839	Cured			Archives Générales, tom. i., 4e série.
1839	Cured			do do tom. i., 4e série.
Oct. 30th, 1839	Cured			Lond. Med. Gazette, vol. ii., 1840.
Dec. 3d, 1839	Cured			Lond. and Edin. Monthly Journ., vol. i.
April 1st, 1840	Cured			Lond. Med. Gazette, vol. i., 1842–43.
April 30th, 1840	Cured			Lond. und Edin. Monthly Journ., vol. i.
July 4th, 1840	Died	15th day	Phlebitis	Porter on Aneurism.
Sept. 8th, 1840	Cured			Guy's Hosp. Reports, vol. vi.
Oct. 6th, 1840	Cured			do do do vol. vi.
Dec. 26th, 1840	Cured			do do do vol. vi.
Nov. 24th, 1840	Cured			Lond. Med. Gazette, vol. i., 1842–43.
Feb. 17th, 1841	Cured			Lond. and Edin. Monthly Journ., vol. ii.
Mar. 4th, 1841	Cured			Annales de Chirurg., tom. iv.
Mar. 26th, 1841	Cured			do do do tom. iv.
May 26th, 1841	Cured			Lond. and Edin. Monthly Journ., vol. ii. 1842.
May 28th, 1841	Cured			do do do vol. i., 1841.
June 2d, 1841	Cured			Edin. Monthly Journ., vol. for 1842.
Aug. 4th, 1841	Cured			Lond. Med. Gazette.
Aug. 12th, 1841	Cured			Lancet, vol. i., 1841–42.
Aug. 30th, 1841	Cured			Lond. and Edin. monthly Journ., vol. ii., 1842.
Sept. 23d, 1841	Cured			Annales de Chirurg., tom. vi.
Oct. 17th, 1841	Cured			Lancet, vol. ii., 1841.
1841	Died		Gangrene	Dub. Med. Journ., vol. xix.
Mar. 31st, 1842	Died	In 24 hours		Liston on a Variety of False Aneurism, 1842.
July 19th, 1842	Cured			Lond. and Edin. Monthly Journ., vol. ii., 1842.
Sept. 17th, 1842	Cured			Amer. Journ. of Med. Sci., vol. v., N. S., 1843.
1842	Died	43d day	Gangrene of limb	Lond. Med. Gazette, vol. i., 1842.
July 13th	Cured after amputation			do do do vol. i., 1843.
	Died after amputation		Gangrene of limb	do do do vol. i., 1843.
Nov. 1st, 1843	Cured			do do do Oct., 1845.
Feb. 24th, 1844	Cured			Lond. and Edin. Monthly Journ. for 1844.
Oct. 14th, 1844	Cured			Guy's Hosp. Reports, Oct., 1845.
Mar. 10th, 1845	Cured			Lancet, vol. i., 1845.
Sept. 17th, 1845	Cured			Monthly Journ. of Med. Sci., 1846.
Nov. 26th, 1845	Cured			do do do 1846.
Sept. 6th, 1845	Cured			Lancet, vol. ii., 1845.
March, 1846	Cured			N. Y. Journ. of Med. & Coll. Sci., vol. i., N. S., 1848.
April 22d, 1846	Cured			At Pennsylvania Hospital.

No.	Surgeon.	Sex.	Age.	Right or left side.	Disease or injury.	Duration of disease.	Ligature separated.
193	Cheesman	Male	25		Wounded anter. tibial and interosseal arteries		
194	Syme	Male	42	Right side	Popliteal aneurism	2 months	36th day
195	Toogood	Male	36		Popliteal aneurism	1 year	11th day
196	Sabine	Female	40	Right side	Popliteal aneurism		
197	C. B. Gibson	Male	45	Right side	Femoral aneurism		18th day
198	Judd	Male	32	Right side	Popliteal aneurism		
199	B. Cooper	Male	30	Left side	Popliteal aneurism		22d day
200	Roux	Male	58	Right side	Popliteal aneurism		
201	Bird	Male	38	Right side	Popliteal aneurism	2 years	13th day
202	Bird	Male	38	Left side	Popliteal aneurism	"A few weeks"	7 weeks
203	Roux	Male	45	Left side	Popliteal aneurism	7 months	
204	Wright	Male	37		Popliteal aneurism	6 days	26th day

Mortality.—The foregoing Table contains a list of two hundred and four cases in which the femoral artery has been ligatured by the Hunterian method. Of these, one hundred and fifty-four recovered, and fifty died. Six of the patients who recovered undergoing amputation in consequence of gangrene of the limbs.

Disease or Injury.—Of the whole number of cases contained in the tables, the artery was tied in one hundred and fifty-five, for the cure of popliteal aneurisms; in twenty-two, for femoral aneurisms; in six, for aneurismal tumours of the leg; in four, for pulsating tumours of the head of the tibia or condyle of the femur; in five, for varicose aneurisms; in three, for rupture of the artery, accompanying fractures of the leg or thigh; in eight, in order either to prevent or abate inflammation after wounds and dislocations, or to arrest hemorrhage, either primary or secondary; and in one, for a supposed popliteal aneurism.

Of the one hundred and eighty-eight cases in which the operation was done for the cure of aneurisms, one hundred and forty-two were cured, and forty-six died.

Sex.—Of one hundred and eighty-three cases of aneurisms, in which this is noted, one hundred and seventy-seven occurred in males, and six in females.

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Age.—The age is noted in one hundred and sixty-four cases of aneurisms, and of these, there were:—

Under 10 years	1 a true aneurism	Between 40 and 50	40 a true aneurism
Between 10 and 20	4	" 50 and 60	14
" 20 and 30	30	60, and above it,	3*
" 30 and 40	72	Total	164

* One of these was a female, aged ninety, who is stated to have been living and well three years after the operation was performed.

Date of operation.	Result.	Period of death.	Cause of death.	Work.
July 7th, 1846	Died	25th day	Phlebitis	Annalist, vol. i., 1846.
Oct. 2d, 1846	Cured			Month. Journ. of Med. Sci., 1846–47.
Mar. 1st, 1847	Cured after amputation			do do do 1846–47.
Mar. 15th, 1847	Died	9th day		Annalist, vol. i.
July, 1847	Cured			Amer. Journ. of Med. Sci., vol. xiv., N. S., 1847.
Nov. 1st, 1847	Died	14th day	Tetanus	Lond. Med. Gazette, vol. v., 1847.
Mar. 18th, 1837	Cured			Guy's Hosp. Reports, vol. ii.
July 31st, 1840	Died	19th day	Phlebitis	L'Expérience, tom. vi.
Jan. 7th, 1837	Cured			Lancet, vol. i., 1837–38.
Mar. 7th, 1837	Cured			do vol. i., 1837–38.
June 13th, 1835	Died after amputation		Gangrene	Thèse of Figuière, 1845.
1848	Cured			Lancet, vol. i., 1849.

Period the Ligature separated.—In one hundred and thirty-seven cases* in which the ligature separated spontaneously, it came away in ninety-one before the twentieth day; in thirty-seven, between the twentieth and thirtieth days; in fourteen, between the thirtieth and fortieth days; and in five, beyond the fortieth day. The longest period to which it remained was the sixtieth day, and the shortest the fifth day.

Return of Pulsation in the Aneurismal Tumour after the application of the Ligature.—This was observed in nineteen cases. In No. 23, a slight pulsation in the sac was observed on the day following the operation, on the next day it was more distinct, but two days afterwards it became much less. The patient recovered. In No. 25, some pulsation was observed in the tumour on the fourth day after the operation, and the patient died on the twelfth day of hemorrhage. In the third case, No. 60, pulsation appeared in the tumour on the day after the operation, but ceased on the sixteenth day, the patient recovering. In No. 67, nine months after recovery from the operation, the tumour, which had diminished so much as to have become barely perceptible, and was without pulsation, reappeared, and pulsation in it became distinct. The cure was finally completed by compression. In the fifth case, No. 78, the artery was ligatured April 27th, 1821. On the 20th of July, 1825, he was readmitted, and stated that the tumour had entirely disappeared soon after he was discharged in 1821, but that, five or six weeks before his readmission, he observed that its swelling had returned at the upper part of the ham, and was at that time nearly of the size of a hen's egg. It was proposed to take up the artery between the part tied in the former operation, and the aneurismal sac; but, as the first operation had not succeeded, the patient preferred amputation. He died, eight hours after it. The femoral was found to

* In some of the cases a double ligature was used.

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Mar. 1st, 1847	Cured after amputation			do do do 1846–47.
Mar. 15th, 1847	Died	9th day		Annalist, vol. i.
July, 1847	Cured			Amer. Journ. of Med. Sci., vol. xiv., N. S., 1847.
Nov. 1st, 1847	Died	14th day	Tetanus	Lond. Med. Gazette, vol. v., 1847.
Mar. 18th, 1837	Cured			Guy's Hosp. Reports, vol. ii.
July 31st, 1840	Died	19th day	Phlebitis	L'Expérience, tom. vi.
Jan. 7th, 1837	Cured			Lancet, vol. i., 1837–38.
Mar. 7th, 1837	Cured			do vol. i., 1837–38.
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be obliterated, for the space of half an inch, at the part where the ligature had been applied four years before. Immediately below it, two small branches were observed to enter the continued trunk of that vessel. These were equal to half the diameter of the femoral vessel. The anastomosing branches given off above the obliterated portion were a good deal enlarged. In No. 82, the disease was a femoral aneurism, and the artery was tied in April, 1823. On the 25th of January following, he had a return of pulsation in the tumour, which disappeared under the application of cold and compression. In No. 95, all pulsation in the tumour ceased upon tightening the ligature, but returned in a few minutes. In half an hour after the operation it was nearly as distinct as before the artery was tied, but on the third day the pulsation ceased. The patient died; and on dissection, the femoral artery, just below the part where the profunda was given off, was found to be divided into two nearly equal branches. These ran down parallel to each other, to the part where the artery passes through the tendon of the triceps muscle, when they again united. The ligature had been placed on the most superficial vessel.* In the eighth case, No. 96, which was one of varicose aneurism at the middle of the thigh, with an aneurismal varix near the ankle, pulsation was observed in the varix at the ankle on the fourth day; the patient recovered, but was not cured. In the year after the operation, the tumour was stationary with the same pulsation. In No. 102, aneurismal tumours existed in both the anterior tibial and popliteal arteries: pulsation returned in both on the twelfth day, but ceased four days afterwards, and the patient was cured. In No. 110, the operation was done in March, 1829; pulsation ceased after it, and the tumour diminished in size. He returned to work, and it ultimately entirely disappeared. In the month of September following, the tumour reappeared with pulsation. By the application of a hard compress on the inner part of the thigh, which he wore for two months, night and day, the pulsation ceased, and one year after the operation no appearance of swelling was to be perceived. In No. 134, pulsation in the sac returned the day after the operation, but rapidly disappeared. In No. 136, the disease was a varicose aneurism of the femoral. Four hours after the operation, feeble pulsation was noticed in the tumour, and on the following day become stronger. The patient died. In No. 144, the operation was done on the 24th of July; on the 31st, indistinct pulsation was observed in the tumour. By the 7th of August it had increased, and is afterwards noticed as present on the 15th and 25th. By the 4th of September it was free from all pulsation. In the fourteenth case, No. 155, pulsation was noticed in the tumour five months after the operation, though it was small and hard; the sac afterwards suppurated, and the case did well. In No. 161, pulsation reappeared in the sac on the tenth day, and gradually increased in violence until the man began to sink. In No. 190, pulsation was noticed in

* I have seen it stated that preparations, showing a similar distribution, exist in the Royal College of Surgeons at Dublin, and in St. Bartholomew's Hospital at London.

the tumour on the eighth day, and on the twentieth was no longer perceptible. In the seventeenth case, No. 191, where the operation was performed in March, the pulsation and size of the tumour had returned to nearly its original size and force by the middle of August. Compression on the artery was employed, and at the end of five days removed. After a fortnight, a slight thrill being again detected in it, it was reapplied for thirty-six hours, and a perfect cure effected. In No. 199, the patient had been operated upon, on the same side, six months previously, by Mr. Greaves, of Manchester. Pulsation returned in the sac twelve hours after it, and the disease was not cured. Upon close examination in the course of the cicatrix, the pulsation of a vessel was discovered, though certainly not of a natural sized artery, nor did any degree of pressure upon this command the pulsations of the aneurismal tumour. In the lower third of the thigh the pulsation of the artery was very perceptible, and pressure here immediately stopped the flow of blood into the tumour. Mr. Cooper believed that the cause of failure of the operation which had been done, was owing, probably, to a high division of the femoral artery into two branches, and tied the vessel low down in the thigh. Immediately upon tightening the ligature, the pulsation in the tumour ceased, but in a few minutes became again as distinct as before the operation. A slight degree of compression was made over the sac. On the following day the pulsation was less perceptible, and two days afterwards it had entirely ceased. During the ten following days the sac had become firm. In the nineteenth case, No. 200, the patient had been operated upon for a popliteal aneurism of the opposite side, three years previously, and was apparently cured, but when he presented himself for the second operation, a pulsating tumour of the size of a hen's egg was found in the ham. Upon examination of the femoral artery of this side, after the death of the patient, it was found to be obliterated for the space of two inches.

In addition to these cases, an instance is mentioned by Sir A. Cooper, where an operation for popliteal aneurism was done by Mr. Key, and the disease apparently cured, but a year afterwards the patient returned to Guy's Hospital with the aneurismal tumour nearly of its original size, and he amputated the limb.

Hemorrhage after the Operation.—This occurred in twenty-four cases, of which twelve died and twelve were cured, one of the latter being with the loss of the limb. In No. 2, there was hemorrhage from the wound on the nineteenth and twentieth days after the operation, on the last occurrence of which the artery "was tied a little higher up." On the twenty-sixth day it recurred, and the patient died. In No. 7, death took place from hemorrhage on the eleventh day. In No. 23, the operation was done on the 14th of July. On the 24th there was slight hemorrhage from the wound, and on the 26th a return of it, which was arrested by compression. On the 6th of August, there was another bleeding, which was again arrested by pressure, and the case did well. In No. 25, bleeding had taken place on the eleventh day, and returned violently on the twelfth, and carried off the patient. In No. 29, hemorrhage

took place on the forty-second day after the operation; it again occurred on the following morning, and an hour afterwards the man died. In No. 34, there was bleeding from the wound on the fifth day after the ligature separated, and the patient did well. In No. 111, there was hemorrhage on the fifteenth day, when the limb was amputated, and the patient recovered. In No. 38, the patient died from hemorrhage on the twenty-seventh day. In No. 40, there was bleeding on the twenty-third day; this recurred on the twenty-fourth, when the wound was enlarged and stuffed with lint. The patient was cured. In No. 56, an attempt to remove the ligature was made three days after the operation; two days subsequent to this, in consequence of loss of blood, a second ligature was placed higher up on the artery, and within a few days there was another gush, and the man died. In Nos. 64 and 74, death also took place from hemorrhage. In No. 68, there was hemorrhage from the wound on the sixteenth day, and a recurrence of it on the twenty-second, but the patient recovered. In No. 71, there was some hemorrhage eight days after the separation of the ligature, but it did not again recur, and the patient did well. In No. 92, a small non-pulsating tumour was observed, soon after the operation, about the middle of the wound, and the same night an alarming loss of blood from the part took place; the artery was now again secured higher up, and the patient recovered. In No. 100, there was hemorrhage to eight ounces on the nineteenth day, and no bad result followed. In No. 96, hemorrhage took place on the separation of the ligature, on the eleventh day, to the amount of a pint and a half, and the patient recovered. In No. 107, there was slight hemorrhage from the wound on the seventh day, and the patient afterwards died of gangrene of the limb. In No. 122, a cure took place, despite copious hemorrhages on the eighth and thirteenth days. In No. 136, bleeding to a large amount took place on the fifth day, and on the following one it recurred, and he died. In No. 129, there was slight hemorrhage on the twelfth day from around the ligature; this returned on the same evening, and a tumour was observed at the point of the ligature which pulsated, and had attained the size of an orange. On the following day hemorrhage again had place, when the artery was tied above the profunda, and the tumour on the thigh laid open. On the eighth day following this, there was another profuse bleeding, which was arrested by compresses and a bandage, and the patient recovered. In No. 130, which was a femoral aneurism, a popliteal tumour of the size of an orange had existed in the same limb, in which a spontaneous cure had taken place after the formation of that in the thigh. The ligature was applied just below Poupart's ligament. On the eleventh day after the operation, hemorrhage to the amount of two pounds took place from the wound, which was stopped by compresses and a spica bandage. On the thirteenth, fifteenth, and seventeenth days, there were returns of the bleeding, but the patient recovered. In No. 193, the femoral was secured, July 7th, on account of a wound of the anterior tibial and interosseal arteries. On the 22d, there was hemorrhage to the ex-

tent of thirty-three ounces from the seat of operation, which was arrested by the application of cold and a tourniquet. On the 24th, in consequence of a renewal of it, the external iliac was tied. On the 26th, there was another alarming hemorrhage, when the saphena vein and a branch of the profunda were taken up. The patient died September 1st. In No. 200, there was a slight hemorrhage previous to death on the nineteenth day.

Suppuration of the Sac.—This occurred, after the operation for aneurism, in sixteen cases; and of these, six died and ten did well. In No. 3, it is stated that the sac opened after the operation, but healed up like any other sore. In No. 19, on the fifth day after the operation, fluctuation became evident and the tumour was laid open. The patient died. In No. 7, fluctuation in the sac was noticed on the ninth day, and on the eleventh it burst, and the patient died of hemorrhage. In No. 26, at the end of a month, fluctuation was perceived in the tumour, and it was laid open. The patient died. In No. 31, the sac opened and discharged during the cure. In No. 38, an eschar formed on the tumour, after the operation, which discharged fetid matter. Warm milk and water was thrown into the sac, and on the same evening there was profuse hemorrhage from it. To arrest this, amputation of the limb was done, soon after which the patient died. In No. 52, the tumour sloughed, one month after the ligature, and the patient recovered. In No. 53, the operation was done in October, 1813, and in the autumn of the following year the sac suppurated, was opened, and cicatrized. In No. 69, the tumour suppurated and was opened, on the fifteenth day after the operation, and the patient recovered. In No. 73, on the seventh day after the ligature of the vessel, the integuments covering the tumour were mortified, and an opening into it was made and its contents set free. The patient died. In No. 81, the skin over the sac, which was gangrenous at the time of the operation, sloughed on the fourth day. In No. 92, there was suppuration of the sac, which was opened and the patient cured. In No. 111, the tumour, which had been punctured before the artery was tied, afterwards suppurated and discharged. The man was cured after amputation. In No. 155, the sac suppurated more than five months after the operation, when an incision was made into it and the patient cured. In No. 160, the tumour suppurated and discharged itself, and the patient recovered. In No. 181, heat of tumour was observed on the eighth day after the application of the ligature; three days after this fluctuation was evident, and an exit was given to the pus. The patient died.

Gangrene of the Limb.—This followed in thirty-one out of the two hundred and four cases contained in the tables, and it in no case occurred except where the operation was done for aneurisms. Of these thirty-one cases, Nos. 12, 19, 35, 58, 64, 83, 84, 89, 91, 94, 107, 108, 109, 128, 177, and 181, sunk at various periods after the operation. In No. 16, the last phalanges of the toes sloughed, as also a spot on the inferior part of the leg, and a portion of the fifth metatarsal bone exfoliated. The patient recovered. In No. 36, the operation was done on the 24th of July; mortification followed on the third

day after it; amputation was done on the 16th of August, six days after which the patient died. In No. 85, the artery was tied on the 25th of January. On the 30th, symptoms of gangrene set in, and on the first of February, the thigh was successfully amputated immediately below where the artery was tied. The gangrene in this case is stated to have been caused by the employment of fomentations of hot salt, notwithstanding strict injunctions to the contrary. In Nos. 97 and 98, the patient had aneurismal tumours in both hams; the left artery was first tied, and gangrene of the foot followed it. The ligature on the right limb was done at the request of the patient; gangrene occurred in it also, and death followed. In No. 99, mortification took place on the ninth day; the limb was amputated on the thirty-fourth day, and the man died. In No. 114, the limb is stated to have been threatened with gangrene before the vessel was tied—it followed the operation, and the man was cured after amputation. In No. 131, the ligature was applied on the 5th of September; profuse hemorrhage occurred on opening the sheath of the vessels. Gangrene immediately followed. Amputation above the knee was done on the 18th, and the patient recovered. In No. 145, amputation was done a week after the operation, in consequence of mortification, and was followed by death. In No. 148, the operation was followed by gangrene of the limb, and the thigh was removed unsuccessfully. In No. 182, gangrene appeared on the third day; amputation was done, after a line of demarcation was formed, and the patient recovered. In No. 183, the limb was amputated on the 22d day, and was followed by death in three hours. In No. 195, the tumour had burst previous to the operation, which was done on the 1st of March; gangrene of the foot and leg followed, and on the 8th the thigh was amputated, and the patient got well. In No. 198, symptoms of mortification appeared on the third day, after which trismus set in and the man died. In No. 203, the operation was followed by gangrene of the foot and leg. The thigh was amputated during its progress, seven days after which death occurred from gangrene of the stump.

Cause of Death.—Of the two hundred and four cases contained in the tables, fifty died. Of these, twenty-three died from mortification of the limb; eight from hemorrhage; five from phlebitis; three from tetanus; two from hectic and diarrhœa; one from thoracic inflammation and abscess in the course of the artery; one from sloughing of the sac; one from the bursting of an aneurism of the aorta within the pericardium twelve weeks after the operation; one from fever; one from absorption of pus; and in four the cause is not noted.

Mistakes in Diagnosis.—In four of the cases included in the tables, mistakes in diagnosis occurred. In No. 83, the precise nature of the tumour could not be ascertained, and it was punctured before the operation. In No. 111, the tumour was mistaken for an abscess, and opened a week previous to the operation; after bleeding three pints it ceased spontaneously. In No. 138, the tumour was of the size of a goose's egg, distinctly pulsated, and was said to have shown itself suddenly, while walking, three weeks previously. Com-

pression was at first attempted, and afterwards the artery was tied, notwithstanding which the swelling continued to increase. On post-mortem examination, it was found to consist partly of a fibrous tissue divided into lobes, and in part of a soft substance containing cells filled with a serous fluid. The artery ran over the tumour between two of the sacs, and through these its pulsations had been so communicated as to give the sensation of the whole tumour pulsating. The right lung was converted into a brain-like mass. In No. 196, the patient was a black woman, in whom there existed great swelling of the whole limb, but particularly of the popliteal region. Suspecting deep suppuration, an incision, an inch in length, was made into it, from which nothing but a little serum, slightly coloured with blood, escaped. The integuments in the popliteal region afterwards ulcerated, and some days subsequently there was a profuse hemorrhage from the part when the artery was tied.

Two very instructive cases of mistake in the diagnosis of popliteal tumours have been published by Mr. Lawrence, of London, which I will here take the liberty of referring to. The first (*Medico-Chirurgical Transactions*, vol. viii. p. 497) was that of a large aneurism filling up the whole ham, and extending on both sides of the femur towards the front of the limb. It had begun behind, and had existed for five months; had a firm, fleshy feel, being a little softer at one of its anterior protuberances than in other parts; was not tender on handling, but gave the patient great pain. The surgeons of St. Bartholomew's, in consultation, viewing it as a large and rapidly increasing tumour, recommended amputation, which Mr. L. did, having first plunged a lancet into the softest part of the swelling, to the whole depth of the blade, without giving issue to any fluid. Examination of the amputated limb showed the tumour to be a popliteal aneurism, containing an immense mass of firm bloody coagulum, and, although the sac had been freely penetrated by the abscess lancet, no part of its contents escaped. The eminent surgeon who records this adds, that he "has stated the case to put others on their guard; and shall be happy if what he has said should, in any instance, prevent so serious a mutilation as that which his patient suffered."

The second case was that of a man, aged thirty, with a swollen and painful state of the right knee joint, consequent upon a fall. Shortly after, a swelling arose immediately above the knee, and gradually extended around the back part and sides of the thigh. Near the tendon of the triceps a softening of the swelling indicated the probability of its containing matter, and a small incision was made into it, from which about four ounces of arterial blood flowed. On examining the swelling more closely, pulsation in it was now discovered, and it was agreed that sufficient ground existed for believing the tumour to be a popliteal aneurism, and accordingly the femoral was tied. The pulsation immediately ceased, and its size gradually diminished; but, after some time, it again enlarged, became painful, the skin covering it sloughed, and the slough extended into the tumour, and the man shortly after died. The tumour was

found to consist of a soft fibrous and dense osseous tissue—the latter originating from the femur. The femoral and popliteal vessels were sound.

Difficulties of, and Accidents during the Operation.—In eleven of the two hundred and four ligations of the femoral artery, the crural vein was either included in the ligature, or wounded in the operation. In Nos. 2 and 90, the vein as well as the artery was tied. In Nos. 13, 73, 94, 107, and 159, the vein was wounded in the operations. In No. 74, the ligature was found to have passed through the vein. In No. 131, profuse hemorrhage occurred on opening the sheath of the vessels. In No. 146, the vein was wounded during the operation; the patient recovered and lived four and a half years after it. On dissection, it was found to be obliterated to the extent of three inches. In No. 161, the vein was pricked in the operation, and a small portion of it included in the ligature along with the artery. It may be well here to mention that a case occurred to Sir A. Cooper, where the patient placed himself upon the table, for the purpose of undergoing ligature of the femoral vessel for a popliteal aneurism, and died before the first incisions were concluded, in consequence of the bursting of an aneurism of the aorta.

In the *Southern Journal of Medicine and Surgery*, for May, 1848, an interesting case of false aneurism in the thigh is related, in which an attempt was made to ligate the femoral artery at the crural arch. A ligature was passed around what was supposed, by all present, to be the artery, but on post-mortem examination it was found that it embraced a portion of a tendon, and that the femoral artery was not tied. The patient was so exhausted from previous hemorrhage, at the time of the operation, that no pulsation could be felt in either of the lower extremities.

Aneurisms on both Sides.—Of the cases of aneurism included in the tables, nine presented popliteal aneurisms on both sides. In Nos. 22 and 23, both aneurisms were observed when the patient presented himself to his surgeon. The left, at the time of the first operation, was small, and increased rapidly after the ligature of the first artery. In Nos. 60 and 61, the aneurism of the left side did not exist at the time of the operation upon the right. In Nos. 79 and 80, the tumour on the right side showed itself but a few weeks before the second operation. In Nos. 97 and 98, the aneurisms were both large, and of seven months' standing; the right artery was tied two months after that of the left. In Nos. 125 and 126, the aneurisms occurred simultaneously, and had existed for fifteen years. In Nos. 129 and 130, there was incipient disease of the right ham at the date of the operation upon the left. In Nos. 167 and 168, the second tumour did not make its appearance till after the cure of the first. In Nos. 188 and 189, the disease seemed to be beginning on the right side at the time of the first operation. In Nos. 201 and 202, the tumour in the left ham was noticed some time after that of the right side had been operated upon. No. 84 was also a subject of aneurism in each ham. In No. 197, the tumour in the ham was first observed about ten days after a ligature had been placed on the external iliac of the opposite side for the cure

of a femoral aneurism. No. 20, had been the subject of popliteal aneurisms of both sides, and the left limb was amputated some time previous to the ligature of the vessel of the right side. In No. 200, also, the artery on the left side had been tied three years previously for a popliteal aneurism.

Pulsating Tumours of the Head of the Tibia, or Condyle of the Femur.—Four cases are included in the tables in which the femoral artery was ligatured for the cure of these affections. They all recovered; but in two of them, although cures appeared to follow, there were afterwards returns of the disease. In No. 68, the limb was amputated between three and four years after the ligature had been applied, the tumour having attained a great size. In another, which occurred to the writer, although the ligature of the vessel was apparently followed by a cure of the disease, the tumour returned, and, eleven months after it, I amputated the limb. In three of the cases in which the vessel was tied for these tumours (Nos. 68, 151, and 187), pulsation reappeared; in the first on the sixteenth day, but soon ceased; in the second on the seventeenth day, and ceased on the twenty-sixth day; and in the third on the seventh day.

Varicose Aneurisms.—The foregoing tables contain five cases of varicose aneurisms of the lower limb. Four of these proved fatal, and in one no benefit was received from the operation. In No. 64, where the disease was situated on the posterior tibial artery, death occurred from gangrene of the limb and hemorrhages. In No. 94, where the femoral was affected, the operation was soon followed by gangrene and death. In No. 96, the disease was situated in the middle of the thigh, and the ligature was placed as nearly as practicable to the sac. The case went on favourably till the separation of the ligature on the eleventh day, when the patient came near losing his life from hemorrhage, and was in no way benefited by the operation. The contents of the tumour never coagulated, nor did the tumour decrease, and in the following year it remained stationary, with as much pulsation as before. In No. 136, death soon followed the ligature of the artery, and, on dissection, the vessel was found to be enlarged nearly to the size of the aorta, with its coats so thin as to give it nearly the appearance of a vein. In No. 148, the artery was tied immediately below Poupart's ligament. It was followed by mortification of the limb, and the thigh was removed six inches below the hip joint. There was afterwards a return of the disease, and secondary hemorrhages terminated life.

In connection with the above instances of varicose aneurism, in which the femoral artery has been tied, it may be interesting to contrast their results with those in which either the external iliac has been secured, or other treatment has been adopted, for the same affection. In the case of Baroni, where the disease was seated in the inguinal region, and the external iliac was taken up, an incision was made into the sac on the forty-fifth day, in consequence of repeated bleedings, with the view of securing all the vessels. The hemorrhage was so frightful, that the patient was only saved from dying on the table by making strong compression, and death occurred eleven days after.

In Dr. Fleischer's patient, where the affection occupied the middle of the thigh, and an incision into the sac was made, the fatal result took place from like causes. In the history reported by Hennen, where the external iliac was tied, the affection being seated in the upper third of the thigh, gangrene and death speedily followed; and in the case of Dr. Morrison, ligature of the external iliac was also made, for a like affection seated at the same part, and death in a short time terminated the sufferings of the patient. In the instance reported by Lallemand, where the disease was seated above the middle of the thigh, and was of five years' continuance, the femoral artery was first tied a little below Poupart's ligament. On the sixth day, in consequence of hemorrhage, the external iliac was ligatured, and on the same evening the bleeding again recurred, and he died. In a case recently published by Dr. Mott, the disease occupied the upper part of the thigh, and had existed for two and a half years. A ligature was applied to the external iliac; gangrene supervened, and the man died on the sixth day.

Observation, however, shows that varicose aneurisms in the lower extremity, after a certain lapse of time, in several cases have become stationary; and instances are recorded in which the affection has continued for years, causing but little inconvenience. In 1820, a patient fell under the notice of M. Dupuytren, with a large varicose aneurism of the upper part of the thigh, which had continued for twelve years without injuring the health, or in any way interfering with the free use of the limb; and in the spring of 1835, a patient was in the wards of M. Velpeau, at La Charité, in whom a like affection, seated high up in the thigh, had existed for more than twenty years, without materially interfering with the use of his member. A few years since, I had an opportunity of examining, along with several other surgeons of this city, a case of long continuance, which inconvenienced, though it did not distress the patient. In face of these facts it is, in my opinion, no longer a question whether or not operative measures should be resorted to in the lower limb in the treatment of such cases. Sound surgery condemns it. The affection does not necessarily compromise life, or the free use of the member; and resort to the knife should not be had so long as the infirmity can be made at all bearable by the use of compresses, laced bandages, and other like means. If in any case an operation for varicose aneurism in the lower extremity is absolutely demanded, all reasoning, as well as experience on the subject, goes to show that no good result can be expected from the application of a ligature by Hunter's method.

The following is a summary of the reported cases of femoral and popliteal aneurisms which have been treated by pressure since 1842. They have, with two or three exceptions, been derived from Mr. Bellingham's Tract on Aneurism, and the Report on Surgery, contained in the first volume of the *Transactions of the American Medical Association.*

No.	Surgeon.	Sex.	Age.	Seat of aneurism.	Duration of disease.	Duration of compression.	Result.
1	Hutton	Male	30	Popliteal	10 days	28 days	Cured.
2	Cusack	Male	55	Popliteal	7 days	31 days	Cured.
3	Bellingham	Male	32	Popliteal	3 months	2 days	Cured.
4	Liston	Male	30	Femoral	2 months	56 days	Cured.
5	Harrison	Male	29	Popliteal	1 month	93 days	Cured.
6	Liston	Male	53	Femoral	2 months	30 days	Cured.
7	Bellingham	Male	33	Femoral	10 days	43 days	Cured.
8	Kirby	Male	28	Popliteal	3 months	53 days	Cured.
9	Allan	Male	32	Popliteal	3 weeks	57 days	Cured.
10	Greatrex	Male	27	Popliteal		21 days	Cured.
11	Cusack	Male	26	Popliteal	1 month	7 days	Cured.
12	Porter	Male	29	Popliteal	2 months	24 days	Cured.
13	Cusack		30	Popliteal		About 20 days	Died suddenly from disease of the heart 48 hours after pressure had been removed. All pulsation had ceased.
14	Porter	Male		Popliteal	9 months	20 days	Cured.
15	O'Ferral	Male	32	Popliteal	3 weeks	33 days	Cured.
16	Jolley	Male	38	Popliteal	4 months	40 days	Cured.
17	Macdonnell			Popliteal	6 months		Cured.
18	Dartnell	Male	38	Popliteal	3 weeks	7 days	Cured.
19	Mackern	Male	30	Femoral	9 months	36 days	Cured.
20	Stork	Male	32	Popliteal	7 or 8 months	91 days	Cured.
21	Stork	Male	24	Popliteal	2 months	22 days	Cured.
22	Cusack	Male	33	Popliteal	16 days	43 days	Cured.
23	Sunter	Male	43	Popliteal	6 weeks	Several days	Cured.
24	Bellingham	Male	38	Popliteal	8 months	Pulsation continuing some time after compression, a galvanic current was passed through the sac. Seven days after this he was seized with erysipelas, and died six days afterwards.	
25	St. Vincent's Hospital			Popliteal			Cured.
26	Armstrong*	Male	26	Popliteal		106 days	Cured.
27	Harrison	Male	42	Popliteal	Some months	A fortnight, when the operation was performed at the request of the patient.	
28	Humphrey	Male	31	Femoral	3 weeks	2 days	Cured.
29	Buck			Femoral		Fairly tried	Failure, and the operation performed.
30	Rodgers	Male	47	Popliteal	2 months	31 days	Cured.
31	Watson	Female	38	Femoral	1 month	70 hours	Cured.
32	Mütter	Male	41	Popliteal	6 weeks	54 days	Cured.
33	Knight†	Male	48	Popliteal	Several months	40 hours	Cured.
34	Hosack	Male	55	Popliteal		5 days. After a fortnight, a slight thrill being detected in the tumour, it was reapplied for 36 hours.	Cured.
35	Tufnell	Male	27	Popliteal	4 months	9 days	Cured.
36	Tufnell	Male	28	Popliteal	A few days	46 days	Cured.
37	Hutton	Male		Popliteal	2 months	7¼ hours, and after an interval of a week 3 hours longer.	Cured.

* In this case, pressure was made upon the tumour, not upon the artery above it.
† In this case, manual pressure, by relays of assistants, alone was used.

ART. II.—*Case of Successful Extirpation of a Fibrous Tumour of the Right Ovary by the large Peritoneal Section.* By WASHINGTON L. ATLEE, M. D., Professor of Medical Chemistry in the Medical Department of Pennsylvania College, Philadelphia, Penn. (With two wood cuts.)

September 17*th*, 1848. I was called upon to visit Mrs. E. K———, of Philadelphia, for the purpose of examining a large abdominal tumour. Before engaging in the examination, the patient gave me the following particulars of her history:—

She is in the twenty-ninth year of her age. When fourteen years old she first menstruated, and during the first catamenial period she took cold, which suddenly suspended the discharge, and this was succeeded by very severe pain. The menses did not recur again for two years, but since their establishment they have always been regular in their return, though invariably painful, and, at times, clotted. When twenty years old, she married Capt. R. K., who is still living. She has had four children. Her first child she suckled over two years; the second, over one year; the third, five months, when it died; and the fourth, thirteen months old, is now at the breast. Three weeks after her third confinement, which was on the 1st of March, 1846, she was attacked with inflammation low down in the right side. During this attack, she felt, low in the right side, a tumour about the size of her fist, oblong in shape, and very movable. It was then so movable that it would fall from side to side, and could easily be taken hold of by the hand. About three months after this she had another attack of inflammation in the same place. For both these attacks, she was very actively treated by an intelligent physician of this city. She was bled, leeched, cupped, and blistered. The tumour has always been sore to the touch, and increased regularly, but slowly in size. Her fourth child was born September 1st, 1847, and about four months before this event the tumour became fixed in the right side near the groin. Previously to this, however, it had been movable, and became gradually less and less so until it became permanently fixed. Since the last parturition, the tumour has enlarged with very great rapidity. Her general health has been, and still continues, pretty good. The tumour, however, is becoming very painful, particularly upon lying down, which prevents her getting much sleep. Ever since the birth of her first child, there has been entire procidentia of the uterus, which now exists to such an extent that the whole uterus hangs out between the thighs, subjecting her to the greatest inconvenience. This has been the case about seven years, and during this whole period urination has been difficult, and for one year past there has been equal difficulty in defecation. She is also subject to habitual constipation.

When the patient stands erect, dressed, she looks as large as a woman at full pregnancy, but by no means as symmetrical in shape. The right side, low down, is exceedingly prominent, both laterally and anteriorly, so as to catch the eye at once. On exposing the tumour in the same position, it is seen to overlap the groin, so as to project downwards upon the thigh in such a way that the open hand, placed between it and the thigh, and its ulnar edge pressed against the groin, is completely buried beneath it. This portion of the tumour presses so much against the upper part of the thigh, when the patient sits, that she cannot bring her thigh up to a right angle.

Upon placing the patient in bed upon her back, and exposing the abdomen, the tumour seems more prominent, in consequence of the abdominal viscera receding. It fills up the whole of the right iliac and right lumbar regions, the whole of the right side of the hypogastric and umbilical regions, overlaping the crest of the ileum, and the whole of the groin, and burying within it the superior and inferior spinous processes of the ileum. Upon pressing in the walls of the abdomen around it, it can be felt dipping deeply towards the spine and into the pelvis. On its anterior surface can be felt and seen a shallow sulcus, running obliquely across the tumour, from the right lumbar region to the symphysis pubis, which seems to divide the mass into two unequal portions, the smallest being beneath. The tumour is very firm in texture, though faintly elastic, but does not in the least fluctuate. It is so remarkably prominent that it can be clasped between the two hands placed on opposite sides of it; but, even with such a purchase, it can be only very slightly moved—indeed, it seems so firmly fixed, that its mobility is doubtful. The tumour is more or less sore on handling, but pressure on its upper part gives her most pain. The skin over the whole tumour is perfectly movable.

The uterus is lying between the thighs, and has dragged the vagina with it, so that it is completely inverted. It is somewhat tumefied. After some manipulation, I succeeded in reducing the uterus and vagina, and proceeded to the examination, both per vaginam and per rectum. The rounded and resisting surface of the tumour can be felt projecting deeply into the pelvis upon the right side, occupying a position between the rectum and vagina; and here, also, it seems *very* indistinctly movable. Immediately after concluding this part of the examination, the uterus was again expelled.

On percussing the surface of the abdomen, every part occupied by the tumour returned a flat sound, and all other parts were resonant. The intestines were principally upon the left side. In the region of the left ovary there also appeared to be some thickening.

This examination caused some soreness and shooting pains through the tumour for a couple of days after.

October 31*st*. My brother, Dr. J. L. Atlee, being in the city, and my uncle, Dr. E. A. Atlee, examined the patient with me to-day. The tumour has increased in size, but in other respects the condition of the patient is the same as above stated.

January 10*th*, 1849. I called to see Mrs. R., with my friend, Prof. W. R. Grant, M. D., with the view of further exploring the tumour, in order to ascertain more exactly its character. Into the most prominent part of the tumour, below the sulcus, I now plunged a trocar and canula directly down to the depth of about three inches. It required considerable force to drive it in. At first, I passed it in about an inch and a half, and withdrew the trocar, but as nothing flowed out, I again introduced the trocar, and pressed it up to the hilt. Still nothing flowed through the canula, not even blood. Permitting the canula to remain, I passed a probe through it, and it came against a resisting substance of great solidity. On attempting to withdraw the canula, I found it difficult to do so; it stuck very firmly, being grasped by the firm tissue of the tumour, so as to offer great resistance to its escape. Immediately on the removal of the canula, about an ounce of venous blood escaped from the wound. Very little pain accompanied the puncture.

Before using the trocar, I divided the skin, with the scalpel, about an inch in length, and to the depth of the surface of the tumour, in order that we might see its surface, and also estimate the character of the attachment, at

this point, between the tumour and its coverings. The tumour is considered to be fibrous in its character.

At this time, the following measurements were taken: A tape, placed on the middle of the crest of the ileum, against the exterior and superior edge of the tumour, and stretched across it, parallel with the sulcus, to the symphysis pubis, against the anterior and inferior edge of the tumour, measures fifteen inches; another, placed at the interior and superior edge of the tumour, about two inches to the left of the umbilicus, and passing at right angles across the first tape, to the middle of the groin, against the exterior and inferior edge of the tumour, measures thirteen inches; one encircling the tumour, on the plane of the abdomen, twenty-six inches; and, lastly, one passed round the hips and tumour thirty-nine inches. These measurements, as well as the location, size, and general appearance of the tumour, will be better understood by referring to figure 1st, sketched by Dr. Grant.

The tumour, at this time, was immovably fixed in its position, and is still increasing in size. The operation was followed by no unpleasant results; the wound healed up kindly, and with very little suppuration.

15*th.* To-day I informed the patient that I had concluded, after due consideration, to give her the chance of an operation if she desired it. Previously to this, we had frequently talked over the propriety of an operation; but, until the exploration on the 10th instant, I could not fully consent to undertake it, and my assent was given only on the following conditions: that she would weigh well all the dangers of the operation, which were clearly and fairly represented. I informed her that the tumour was so firmly attached to the bones of the pelvis that it rendered her case, at this stage of it, quite obscure; that it was impossible to say whether it was a fibrous tumour of the uterus, or of the ovary; but, from the history she had given of it, I considered it one or the other; and that, in either case, I thought an attempt at its removal, in view of the rapidity of its growth and its great annoyance, was perfectly justifiable. I also informed her that this attempt might fail; that the tumour was manifestly so incorporated with the bones and large arteries of the pelvis, that the accomplishment of its removal was uncertain; that I would, notwithstanding, make the attempt, if she desired it, and proceed with the operation as long as I considered it safe to do so, with the view of completing it; but that, if anything, during its progress, should show that it would be necessarily fatal to proceed, I would stop short of that point, and close up the wound without finishing the operation.

The patient replied, that she had well considered all the dangers of the operation, that she had made up her mind to have it done, and that she would leave all the arrangements for it to me.

20*th.* Dr. Grant called with me to see the patient, and I reiterated the above statement in his presence, and received the same reply. He, also, assured her that his views corresponded with those expressed by me.

After this the tumour continued to increase rapidly in all directions, becoming more and more burdensome. Her sleep was greatly interfered with, and she suffered severe pain and soreness through the tumour and lower limbs.

March 6*th.* The size of the tumour and sufferings of the patient are causing her to be urgent about the operation. I have, therefore, fixed on the 15th instant for it. Before undertaking it, however, I thought it best to sound the uterus and bladder. Simpson's sound passes into the uterus, as it lays between the thighs, to the distance of five inches, unaccompanied with pain or soreness. The vesical sound indicates no particular irritation of the bladder, although its introduction occasions a slight sensation of pain.

From this time until the day for the operation, the patient was directed to be particularly careful of her diet, to live on light, nutritious, unstimulating food, to keep her bowels regular, to avoid exposure and fatiguing exercise.

13*th*. The patient took a dose of castor oil this evening for the purpose of entirely unloading the alimentary canal, and she was ordered not to take any solid food afterwards. After the operation of the oil, she was consequently kept on liquid and light diet during the succeeding day and night, so that, on the morning of the day appointed, I found my patient in an admirable condition for the operation. Her pulse was eighty-two to the minute.

15*th*. At ten o'clock A. M., all the arrangements for the operation being ready, I stated to the medical gentlemen present what I had before stated to my patient. Dr. Grant, as my principal assistant, and Drs. E. A. Atlee, Darrach, Meckley, McIntyre, Kaski, Hunter, and Gobrecht, and Messrs. Murray and White, medical students, with several female friends, were present. After the patient was placed upon the table in the proper position, thirty or forty drops of a mixture of one part of chloroform and two parts of ether were poured into a handkerchief, folded like a funnel, which was placed loosely over the mouth and nose, so as not to exclude atmospheric air, in which way she inhaled it until she lost sensibility, requiring, for this purpose, not over one minute. I permitted her to become perfectly unconscious for the first incision, as it necessarily would be a very extensive one, and through the most sensitive tissue. Immediately upon the full action of the chloroform being established, I made an incision, extending from the symphysis pubis, across the tumour, below the sulcus, to the middle of the crest of the ileum on the right side. This incision was curvilinear, its convexity presenting downwards, its greatest distance from the sulcus about three inches, while its two extremities approached the sulcus, so that the incision represented the arc of a circle, while the sulcus represented its chord; or, in other words, the former was the bent bow, and the latter its string. The incision was sixteen or seventeen inches long, and was at once boldly carried down to the surface of the tumour through all the intervening tissues. This portion of the tumour was covered by a dense aponeurosis, derived most probably from an expansion of that portion of the united tendons of the internal oblique and transversalis muscles, which is inserted into the linea ileopectinea, and also of the inferior border of Poupart's ligament. The whole tumour, below the sulcus, was covered unequally with this aponeurotic expansion. It was, however, not firmly adherent, but was readily and rapidly detached from the surface of the tumour by the point of the index finger and handle of the knife. By this means (the finger, the handle and edge of the knife), the tumour below the sulcus was easily exposed; but considerable difficulty arose upon reaching the sulcus. This was found to correspond with an indentation in the tumour about an inch deep, and occupied by Poupart's ligament, and the lower edges of the abdominal muscles, Poupart's ligament being tightly stretched, from the superior spinous process of the ilium to the symphysis pubis, across the tumour, and, as it were, sawing into its very substance, and binding it down into the bones of the pelvis. It was with great difficulty that the ligament was dissected from this deep fissure, which being done, a body of muscular tissue—the abdominal muscles—had also to be detached, when finally I came upon the peritoneum, which, at this point, was reflected from the surface of the tumour on to the internal surface of the abdominal muscles. The peritoneum was now severed from one end of the incision to the other, after which I passed my hand into the cavity of the abdomen to survey

the great body of the tumour, and to ascertain the existence or not of adhesions. There were no adhesions of the viscera to the tumour, and none between the peritoneal surface of the tumour, and the parietes of the abdomen; but the tumour was firmly bound down to the whole iliac fossa. With one hand in the abdomen, and the other on the outside, placed so as to grasp the tumour, I was yet unable to give it the least motion, and upon further examination I found that the tumour was *saddled* across the crest of the ileum, its superior and inferior spinous processes, and across the whole brim of the pelvis to the symphysis pubis, adhering firmly both to the fascia of the dorsum and to that of the fossa of the ileum, dipping down on each side of these bones, which penetrated deeply into its substance, and seemed almost incorporated with it. In extending the survey, within the abdomen, towards the linea alba, I found that the peritoneal coat of the tumour gradually run into, and became part of, the broad ligament of the uterus. While examining this part of the pelvis, I felt the common iliac artery of the right side beating strongly against my hand, and I could trace the external iliac in close contact with the tumour, passing beneath it, and pressed upon by it. A very strong muscular and tendinous attachment, binding the tumour down to the symphysis pubis, still remained at the internal extremity of the sulcus. This evidently was the insertion of Poupart's ligament, and was cautiously severed, with the hope of being able to tilt up this end of the tumour. Still, although it was liberated from all its coverings, from the grasp of Poupart's ligament, and the lower edge of the muscular walls of the abdomen, the tumour remained immovable. After detaching the pubic end of Poupart's ligament, and exposing this part of the tumour, the round ligament of the uterus came into view, passing close upon the tumour, indeed seeming to penetrate into its substance, curving through the tumour from the uterus to its insertion in the pubis. It was very much elongated and relaxed, and was carefully detached by the knife and left entire. The proper pedicle of the tumour—the broad ligament and Fallopian tube—was the only attachment remaining, excepting those very firm and extensive adhesions to the bony pelvis above described. At this stage of the operation, I felt like coming to a stand, closing the wound, and leaving the patient to her fate; but, upon reviewing the whole ground, I concluded that, although the separation of the tumour would be exceedingly difficult, yet it involved no positive risk excepting the attachment to the iliac and femoral vessels. From the middle of the crest of the ilium to the symphysis pubis, the edge of bone was deeply buried in the tumour, which overlapped it to a considerable extent on both sides, adhering to the fascia of the fossa and dorsum of the ilium. It was plain, therefore, that there was no other danger than the iliac and femoral vessels, which, with proper care, could be avoided; and, not deeming the difficulties insurmountable, I determined to proceed with the operation. Passing my left hand into the cavity of the abdomen as a guard to the intestines and iliac vessels, and, at the same time, as a guide to direct the cutting instruments over the face of the iliac fossa, and directing an assistant to seize hold of the tumour that it might be strongly and forcibly lifted up, and tilted from side to side as the separation progressed, I attempted to use the scalpel in the ordinary way; but this was impossible, in consequence of the inconvenient angles at which the knife had to be used, as the tumour overlapped the bones to so great an extent, and was so closely incorporated with them. I was, therefore, forced to introduce the point of the knife between the crest and planes of the ilium and the tumour, and thrust it forward like a chisel, substituting at times the probe-pointed

bistoury, at others, a strong scissors, before I could detach any portion of it. I finally succeeded, however, by scalpel, bistoury, and scissors, in relieving it from its attachments to the crest of the ilium, and the corresponding external and internal faces; and next, from the superior and inferior spinous processes, and the corresponding portions of the iliac fossa. This was an exceedingly difficult part of the operation, as the tissue of the tumour itself was so unyielding, as well as its attachment to the bones, that little aid was received from the assistant's efforts to manage the tumour to my advantage. The knife, too, had to be directed solely by the sense of touch, as nothing here could be seen. After accomplishing this much, however, the remaining adhesions to the brim of the pelvis admitted of the tumour being tilted backwards and forwards, so that the future dissection could be directed by the eye. This was fortunate, as particular caution was requisite, in consequence of the relation of the iliac and femoral vessels to the tumour. Upon attempting to raise the latter from its bed, it was found that these vessels were also elevated, showing an attachment between them, or at least their sheath, and the tumour. Before separating this attachment, I dissected the tumour from everything else. I cut through the sheet of peritoneum, constituting the broad ligament, until I completely insulated the pedicle of the tumour, which contained the Fallopian tube, and then passing around it a six-stranded silk ligature, waxed, but not twisted, Dr. Grant tied it securely. Upon drawing the first knot, the usual manifestations of ligating the Fallopian tube were quite evident. The pedicle, which was small and principally membranous, was now detached close upon the tumour. The only adhesions now remaining were those to the vessels. This dissection requiring great care, and the day being dark, in consequence of the sky being overcast with clouds, I had two sperm candles lighted to enable me to prosecute the balance of the operation with safety. This was satisfactorily done, and the tumour was lifted away.

There still remained, adhering to the ilium, brim of the pelvis, and vessels, small layers of fibrous matter belonging to the tumour, but which could not be separated with it. This was all carefully dissected off, excepting a small portion adhering to the vessels.

The wound was now carefully examined, the clots were removed by picking them out, and the parts well cleansed with soft sponges dipped in lukewarm water. A vein was found bleeding on the internal face of the abdominal muscles, and tied; and the wound was left exposed for some time afterwards. No other vessel required the ligature. The hemorrhage was principally venous, and did not exceed in amount four ounces.

The omentum, which was largely about the wound, was now spread evenly over the intestines, and the wound was brought together, and secured by eight needles with twisted sutures, between which were placed numerous strips of adhesive plaster—the two ligatures being brought out at the nearest points. Over these was laid a thick napkin soaked with lukewarm water, and over all was applied a figure of eight bandage, including the right thigh. The patient had her clothing changed, and afterwards carried to bed. The uterus was replaced in the pelvis. A few teaspoonfuls of brandy and water were given to her, although there was no evidence of great prostration, her pulse having remained good to the last.

The patient, although under the influence of anæsthesia, sufficiently to destroy all sensation of pain, retained a certain amount of consciousness, as she conversed with me most of the time during the operation in reference to its

various stages; and when the tumour was removed, she asked if it was out, and requested to see it. It was immediately lifted up and shown to her.

The intestines remained perfectly quiet. The stomach and diaphragm were equally undisturbed. There was no action of the abdominal muscles. Everything about the abdomen seemed almost as passive as in the subject on the dissecting table during the whole operation, which lasted thirty-seven minutes. The temperature of the room was kept at about 80° Fahrenheit.

The patient was now placed upon absolute diet, and the dressings of the wound were to be kept constantly moistened with cool water. Drs. Kaski, Hunter, and Gobrecht, recent graduates, and Messrs. Murray and White, students of medicine, were appointed to take charge of the patient, and in turns to watch her night and day, charged to make hourly memorandums of her condition, and to report to me any unfavourable symptom that should arise.

At 3 o'clock P. M, her pulse was 96, soft, and open; skin warm and soft; reaction is becoming pretty well established; complains some of pain in the back, to relieve which, she was inclined upon the right side; yawns; some oozing of blood from the external angle of the wound; there has not been any gastric or diaphragmatic disturbance, and no tendency to sinking. Removed by the catheter ℥j of clear and good-coloured urine. Thermometer 76°. Has been drinking barley water.

5 P. M. The patient has had several sweet naps of from fifteen to twenty minutes each. At 4, she rejected a little of the barley water. The pulse is 102, more quick and slightly hard; skin warm, though not above the natural temperature; still yawns; the nose has not yet recovered its natural heat; oozing of blood from the external angle of the wound continues.

11 P. M. The patient is in excellent spirits; talks cheerfully; has had frequent short sleeps; pulse 108; skin dry, and slightly above the natural temperature; palms and tongue dry; considerable thirst for cold drinks; the nose has recovered its natural temperature; reaction perfect. Catheterism: ℥viij clear and high-coloured urine. Changed the position of the patient, and her under clothing. Allowed iced drinks.

16*th*, 9 A. M. For about two hours in the middle of the night the pulse was 110 to the minute. The patient, however, had a comfortable night. The pulse now is 108, soft, less quick, and more full; skin soft and more natural in feel; temples moist; less thirst; tongue dry in the centre; still complains of her back, and some headache. The patient is quite cheerful; laughs, and talks, and says she "feels like herself again," and thinks she is going to get well. There is very little oozing from the wound, the clothes beneath being stained more by the water dressing than by blood. By catheter drew away ℥viij of pretty deeply coloured urine, which, on cooling, deposited a copious sediment of mucus. Changed her clothing and position.

1½ P. M. Dr. Fox called to see the patient with me; is delighted with her condition, and says he never saw a patient in a better situation after any operation; pulse, 104.

6¼ P. M. Complains of some flatulent pain in the left iliac region. Gave forty drops of McMunn's Elixir of Opium. Drew off ℥viij urine, having a peculiar *burnt* smell, and a bitter taste.

10 P. M. Found her sleeping very sweetly; the pulse and respiration were timed while she was asleep, the former was 98, the latter 26. She awoke cheerful. Drew about ℥iv of pale urine; there is no weeping, or at

least very little, of bloody serum from the wound; changed her clothing, during which she helped herself.

17*th*, 9 A. M. The patient has had a most delightful night, sleeping most all the time. Pulse 96, both before and after changing her clothes. There is a decided purulent odour arising from the wound. Found her reading a book, which I removed, as improper. Catheterism: urine ℥xij. She is desirous of engaging in conversation.

11 P. M. Has had a very comfortable day; was cheerful, talkative, and disposed to be jocular. In the evening some restlessness, until the catheter was used. Pulse 88, soft and full; respiration 25; skin soft and cool.

18*th*, 9 A. M. Rested well all night; pulse 88, and natural; skin and tongue natural; a fine flow of spirits; the patient jokingly asked to sit up on the rocking-chair. Catheterism: urine ℥xviij. Menstruation since last evening at 6 P. M. Allowed her to-day chicken water, thin mutton broth, oyster broth, and ice cream. Ordered ℥ss of castor oil, to be taken about 11 A. M.

6 P. M. Administered an injection; it came away without any feculent matter. Repeated the oil.

10 P. M. Oil has not operated. Ordered injections every two hours. Drew off ℥xx of urine, having a strong phosphatic odour.

19*th*, 4 A. M. The injections having brought away very little feculent matter, a tablespoonful and a half of oil were administered, which in half an hour was followed with a discharge of fæces, unaccompanied with pain.

9 A. M. The oil has operated well, and is seen floating on the discharge. Removed ℥xvj of urine, containing phosphatic deposit. For the first time has a desire to urinate.

2 P. M. Examined the wound; it promises to heal by the first intention, no inflammation on the edges. All symptoms highly favourable.

20*th*, 2 P. M. Symptoms all favourable; pulse 84; passes urine without the catheter. Dressed the wound; removed all the needles; the wound has healed by first intention, excepting at the two points where the ligatures escape, and here there is merely a show of laudable pus.

25*th*. The patient has been continually improving, and is allowed to sit up in bed to-day, with a chair behind her.

On Thursday, March 29th, she commenced sitting up out of bed, and afterwards continued to do so daily.

The ligature of the pedicle came off on Tuesday, April 3d, and that of the vein the day after. On Thursday, April 12th, the patient rode out for the first time, after which she continued to take exercise daily, until her health was perfectly re-established.

There was no suppuration from the wound excepting along the track of the ligatures, and this certainly did not amount to over a teaspoonful during the whole period.

Subsequently to the operation, the patient was visited occasionally by those medical gentlemen present at the time, and also by Doctors Fox, Norris, West, Dorr, Harry, Gallaher, Whiteside, and Brookfield.

The tumour weighed eight pounds, measured round its greatest circumference two feet three inches, and round its least, twenty-three inches. It is fibrous, or fibro-cartilaginous, and, in most of its characteristics, resembles the tumour I removed from Miss L. P., in 1844. [See *Amer. Med. Journ.*, April, 1845, p. 320.] The drawings, Figs. 2 and 3, exhibit the general appearance of the tumour. The specimen, and a wax cast of it, taken by Prof. Grant, may be seen in the pathological museum of the Medical Department of Pennsylvania College.

Fig. 1.

Fig. 2.

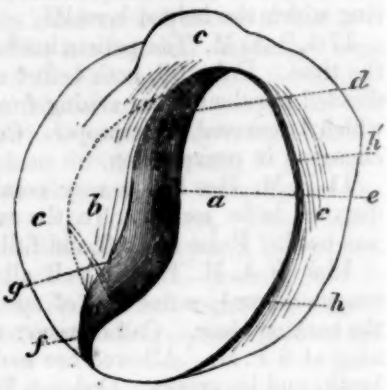

Fig. 3.

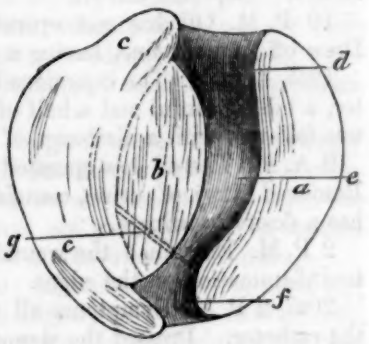

Figure 1 represents the tumour before its removal; *a a*, the linea alba; *b*, the left hip bone; *c c*, the sulcus; *d*, the cicatrix left by the trocar.

Figures 2 and 3 represent the tumour after its extirpation: *a* the portion below Poupart's ligament, [the sulcus, *c c*, in Fig. 1,] and which is not covered with peritoneum; *b*, enclosed by the dotted line, the portion attached to the iliac fascia, and likewise not covered with peritoneum; *c c c*, the great body of the tumour, which occupied the abdominal and pelvic cavities, and covered with peritoneum; *d*, a fissure from one and a-half to two inches deep, the bed of the crest and superior spinous process of the ilium; *e*, a fissure made by the rim of the pelvis; *f*, continued to the symphysis pubis; *g*, the bed of the external iliac vessels; *h h*, an indentation from a half to one inch deep, formed by Poupart's ligament.

Remarks.—Difficult as it was, before the operation, to decide upon the real character of this tumour—whether it was a fibrous tumour of the ovary, or of the uterus—it is, perhaps, equally as difficult, since the operation, to decide this question. In the heading of this report, I have called it an *ovarian* tumour, because its whole history, and the character of its pedicle, would seem to indicate this; and yet its peculiar structure is precisely the same as that of those solid tumours which originate in the uterine tissue itself. In the extra-uterine fibrous tumours, the pedicle is usually short, thick, and fleshy, while in ovarian tumours it is as frequently long, thin, and membranous. The latter condition obtained in this case, and yet there is a pathological specimen in our

museum, of two small fibrous tumours, attached to the posterior wall of the fundus of one uterus, both of which have membranous pedicles, similar to those found in ovarian tumours. If this, therefore, were a uterine tumour, with a membranous pedicle, then the presence of the Fallopian tube was an accidental occurrence.

From the intimate connection which the tumour had with the bones of the pelvis, it might, at first view, be supposed to be independent of both the ovary and uterus, and, like other hard periosteal tumours, to have originated from the periosteum of those bones, its attachment to the Fallopian tube being also accidental, and its relation to the broad ligament of the uterus being established by its development in that direction. This, perhaps, would be the most plausible inference, if it were not for its early history; but one is entirely irreconcilable with the other. In a pathological point of view, therefore, the questions are particularly interesting: How did this tumour become so closely incorporated with the bones of the pelvis? and how can it be explained that Poupart's ligament was dislocated by the tumour, and imbedded in its substance, if it be either ovarian or uterine? These questions, I think, may be satisfactorily answered. The patient had two attacks of inflammation in the right side low down, with an interval of about three months between them. During the first attack, she discovered the tumour. Lymph, no doubt, was thrown out at this time, which caused the tumour to be attached to the iliac fossa, the adhesions being long enough to allow of considerable motion. After this, the patient became pregnant, and as the uterus enlarged in proportion as gestation progressed, in the same proportion the tumour became more and more firmly fixed into the iliac fossa, and, in consequence of being pressed into the right groin by the enlarging uterus, it formed attachments to Poupart's ligament. Four months before this parturition, the tumour became so adherent that the patient could not move it, although during this period it did not appear to enlarge. After parturition, the tumour, becoming more active, began to grow, and developing itself in all directions, it, as it were, wedged itself under Poupart's ligament, which, adhering to the tumour, was elevated by it as it grew, until it was completely detached from the groin. As the tumour continued to grow rapidly, carrying with it the attached Poupart's ligament, it entirely destroyed the normal relations of the latter to the pelvis. Its pubic and iliac extremities only retained their natural attachments, while the rest of the ligament, with the inserted muscular fibres, was buried in the tumour, and elevated several inches, so as to be entirely dislocated from its original bed. This view of the development of the tumour is supported by the external appearance of that portion of it, *a*, Figs. 2 and 3, which was below Poupart's ligament [the sulcus, *c*, *c*, Fig. 1], as it is not covered with peritoneum, but has, instead, muscular and aponeurotic fibres traversing its surface; while the rest or great body of the tumour, *c*, *c*, *c*, Figs. 2 and 3, which was above Poupart's ligament, and within the abdominal cavity, is covered with peritoneum.

Having thus shown how Poupart's ligament, became involved with the tumour, and dislocated by it, I will now inquire into the curious circumstance of a loose tumour becoming so intimately incorporated with the bones of the pelvis. The above ligament has had much to do in this matter. After the tumour had formed adhesions to the iliac fascia and to the ligament, and after it had developed itself beneath the ligament, so as to raise the latter from its natural position to one across the tumour, it can readily be conceived how a ligament, as strong and resisting as Poupart's, and situated as it was, bound firmly by its two extremities to the iliac and pubic bones, and traversing the tumour, must have powerfully opposed its upward development, and impelled it forcibly upon the bones beneath. The tumour, thus confined between two fixed points, while it still continued to grow, necessarily overlapped the unyielding bones of the pelvis, and formed those strong adhesions which were found to exist, and which rendered the tumour so immovable.

With regard to the use of chloroform in gastrotomy, I would remark that it is likely to strip this operation of some of its dangers. Such perfect quietude of the diaphragm, of the abdominal muscles, and of the viscera, is maintained, that the operation is greatly simplified and facilitated. It does away with the necessity of constantly handling the ejected bowels, to keep them out of the road of the surgeon's knife, a circumstance, in itself, calculated to induce inflammation of the peritoneum, in consequence of the greater or less contusion, by this means, of the coats of the intestines. These tender viscera, also, in not being expelled from the cavity of the abdomen, are not exposed so much to the irritating effects of atmospheric air and diminished temperature, other causes for inflammation. Besides, the operation is not accompanied with, or followed by that shock to the system which almost invariably is connected with it under other circumstances, and which is succeeded by a corresponding reaction tending to inflammation. And it also enables the operator to do without an opiate to quiet the peristaltic action of the bowels at the time of the operation. These effects were fully illustrated by the above case, and also by two other more recent cases, which I expect to report in the next number of the Journal. The use of anæsthesia, therefore, is calculated to render gastrotomy a much less dangerous operation.

In consequence of the muscular excitement occasionally induced by the inhalation of ether, I have never been reconciled to its use; and have, therefore, always preferred the employment of chloroform. The latter I have used very frequently without producing any alarming symptoms. In two cases, however, in which I administered it, soon after its introduction in surgery, it was followed by unpleasant results. Both patients were ladies. One of the operations was a subcutaneous section of a ganglion on the wrist joint, the other the extirpation of an encysted tumour on the arm. In both, after the effects of the chloroform went off, syncope immediately supervened, which was followed by vomiting of undigested food, and subsequent speedy recovery. In both cases, the chloroform had been inhaled soon after taking a meal, and

had the effect of arresting digestion. Since then, I have never given it on a full stomach, and no such effects have followed.

Although I have said that no alarming symptoms have ever happened in my hands from the use of chloroform, I have, notwithstanding, ceased giving it by itself, in consequence of several cases of death from it having been reported. I now substitute a mixture of one part of chloroform and two parts of ether, liquid measure, which has a most delightful effect upon the patient. The too great sedative action of the chloroform is counteracted by the stimulating effects of the ether, and, *vice versa*, the too stimulating action of the ether is counteracted by the sedative effects of the chloroform. From half a drachm to two drachms will accomplish the object in from one to two minutes. So soon as sensation is destroyed, I withdraw entirely the agent, allowing only the respiration of pure atmospheric air. I consider a linen handkerchief, or napkin, ironed smoothly, and folded in the form of a funnel, so as to enclose the nose and mouth loosely, infinitely superior to all other contrivances for its administration, and also safer. It never completely excludes atmospheric air, and consequently prevents the asphyxia likely to be induced by the undiluted anæsthetic vapour.

I observe, that Dr. Warren, of Boston, uses two parts of the purest alcohol, with one part of chloroform. My colleague, Professor Gilbert, who first employed these agents mixed, uses one part of chloroform with seven parts of ether. I think they, and others, upon trial, will much prefer the mixture which I am in the habit of employing.

Before closing this paper I desire to correct a statement made by Dr. Lee, in his valuable work on *Tumours of the Uterus*, pp. 198–99. Dr. Lee, speaking of the case of fibrous tumour of the uterus, which I reported in the *Amer. Med. Journ.*, April, 1845, p. 309, says that my patient "*had a very narrow escape from great hemorrhage*," that the "*hemorrhage was excessive*," and that "*this patient nearly lost her life from the great bleeding consequent upon the operation.*" Now the truth is, that the hemorrhage was trifling—indeed, none at all from the *patient*. At page 314 of the above Journal, the report reads as follows: "The pedicle was now severed close to the tumour. At this instant, a gush of blood took place from the cut surface, but it being black, our apprehensions were soon allayed—*it was the strangulated circulation of the tumour*, amounted to from *two to four ounces*, and *was the only hemorrhage that occurred.*"

ART. III.—*Ligature of the Common Carotid Artery.* By JOHN P. METTAUER, M.D., LL.D., Professor of Principles and Practice of Medicine and Surgery in the Medical Department of Randolph Macon College, Virginia.

SINCE Abernethy's operation, performed in 1798 or '99, ligature of the common carotid has been frequently and successfully resorted to, both in this country and Europe. Even both carotids have been ligated, after various intervals of time, however, and patients have recovered. The dangers of the operation have led surgeons, nevertheless, to undertake it with extreme circumspection, which is evinced by the fact that a majority of the operations, already performed and reported, were executed by the more experienced operators. The possibility that the important organs involved in the operation might become extensively and violently inflamed, seemed to constitute the chief danger incident to it. Within a few years past, the attention of surgeons has been directed to disturbances of the cerebral functions, following ligature of the common carotid artery, and there is good reason to believe that a majority of the unsuccessful operations were rendered so chiefly by those disturbances, as they marked the cases in greater or less degrees of intensity. The object of this paper is to lay before the profession a few observations touching those disturbances, deduced from two unsuccessful operations, performed by the writer.

Before the cases to be reported in this paper terminated unfortunately, I had never supposed ligature of the common carotid could be defeated, or rendered unsuccessful, by any other accident than inflammation and its consequences, especially suppuration; or hemorrhage, from an unsound condition of the artery itself, disposing its walls to ulcerate, or to slough, from the pressure of the ligature. It never struck me, in reflecting on the operation, that the brain would be likely to suffer seriously, by cutting off the direct supply of blood from the corresponding hemisphere; or, that an altered condition of the circulation of it could possibly impair the cerebral exercises seriously; knowing, as I did, that the carotids of the opposite sides communicated freely by numerous anastomoses, and the vertebral arteries by large inosculations in the region of the sinuses of the cuneiform process of the occipital bone, the falx, and the hemispheres of the cerebellum, and especially by a branch from the deep-seated artery. I supposed there would be very little more disturbance in the cerebral functions of the brain, than in the innervation of the nerves of a limb after the operation for aneurism, and that it would soon subside in health, after the altered condition of the circulatory organs was perfected. The cerebral disturbance which followed my first operation, although considerable, was not altogether unexpected; and I indulged the hope that it would soon pass away, with the re-establishment of the circulation of the corresponding hemisphere, in the altered condition of its

arterial arrangement. With anxious care I watched the progress of this, my first case of ligature of the common carotid artery, scanning the unpromising symptoms with a scrutiny and devotion which none can appreciate but a surgeon who has passed through a similar trial; one moment, interpreting the partial paralysis favourably; the next, referring it to some incorrigible lesion of the hemisphere, corresponding with the ligated carotid, and ready to relinquish the case as lost. For more than ten days I anxiously watched over, and laboured with this case, which terminated in death on the twelfth from the day of the operation, and not on the eighth, as reported to the Committee on Surgery, which report was made from memory. This case, as well as one other contained in this paper, were briefly mentioned, not actually reported in detail, to the Committee on Surgery of the American Medical Association, through Dr. Norris, during the winter of 1847–48. The operation was performed on the 12th of May, 1829, and the patient died on the twelfth day after.

Case I.—The subject of this case was a man, forty-three years of age, who had anastomosing aneurism of the antrum and nasal cavities, of many years' continuance, which had subjected him to frequent and exhausting hemorrhages, and had produced great debility, and a state of complete anemia. The anemia was such that the blood discharged from the tumours, the day preceding the operation, would barely stain a white cloth. For months previous to the operation, the appetite was almost extinct, and the bowels constantly locked up, unless when opened by cathartics; and to the action of these they responded reluctantly and very imperfectly, seldom displaying in their evacuations the evidences of the biliary secretion. From the time the case came into my hands to the period of its fatal termination, the pulse constantly displayed the characters peculiar to reaction from excessive losses of blood. Occasionally, too, during this period, there was slight delirium, especially during the night. And there was very considerable emaciation.

In the performance of the operation, the region below the musculus omo-hyoideus was selected; and, without describing the precise mode I adopted in its execution, I will observe that it was accomplished with little difficulty, and without a single untoward occurrence. Not more than half an ounce of blood was lost, and the time consumed was so brief that the patient declared that the operation was completed before he had time to complain. After forming the incision, which was done in the usual manner, and laying open the sheath, the ligature was passed from within, which enabled me to guard against a slight bulging of the vein that otherwise might have caused some difficulty; and I employed a short blunt needle considerably curved, armed with an animal ligature formed of thin buckskin, well stretched and rolled, conveyed beneath and around the artery with Physick's forceps. Not the slightest injury to either of the accompanying nerves was effected. The free extremities of the ligature were carefully tightened, after placing them together, so as to elevate the artery somewhat, which enabled me to satisfy myself that nothing but the artery was included by it. After sponging out the wound carefully, the knot was formed, the ends of the ligature cut off close to it, and the wound closed and confined with adhesive plasters, supported by a light compress and bandage.

When the ligature was first drawn firmly on the artery, it seemed to produce a shudder through the whole frame; but it was transitory, and the patient

expressed himself as being quite comfortable in a few moments after. He was placed in bed with the head somewhat elevated, and the neck entirely at ease. In this condition he slept a few moments, but was aroused from his slumber by a convulsive start of most of the muscles of the right side, the left carotid being the seat of the operation; the patient had a wild expression of countenance, and great restlessness. The pulse, too, was considerably agitated. Thinking revulsion to the bowels might relieve these symptoms, an active enema of strong salt water was speedily administered; and though several others were injected in rapid succession, as many as three or four, very imperfect and scanty evacuations from the bowels were procured by them. I now administered calomel, ten grains; scammony, six grains; aloes, twelve grains, in the form of powder; with directions to repeat the injections every half hour until the bowels were freely evacuated. This course of treatment was commenced about twelve hours after the completion of the operation. The injections were regularly administered, and the cathartic powder repeated after intervals of four hours, for twenty-four hours, without the least cathartic effect. Before the twenty-four hours had expired—one of the attendants supposed it was about fourteen hours after the operation—it was discovered that the right side was nearly paralyzed; and when the limbs of that side were moved, the motion was convulsive. The man was now entirely delirious; incessantly moaning; his voice had become hoarse and squeaking, like the bleating of a goat; there was great restlessness; the thirst was unquenchable; there was retention of urine, requiring the catheter to be used every seventh hour; and very considerable heat of skin and reaction of the pulse. On the third day, the bowels proving incorrigible yet, I detracted fourteen ounces of blood, hoping it might moderate the existing symptoms, and render the bowels more impressible to the cathartic means. The bleeding was well sustained, but it could not be perceived that the least benefit had followed from its use. Finding impressive cathartics answered no good purpose, those of a saline nature, variously compounded, were next resorted to, and largely and repeatedly used. These proving ineffectual, croton and castor oil were next had recourse to; the injections being at the same time employed, and were now conveyed high up into the sigmoid flexure of the colon, with a large gum tube. Under this active treatment, the bowels yet proved obstinately costive, although six days had now elapsed since the operation was performed. On the seventh, I had recourse to antimonials, in the dose of half a grain of tart. emet., in watery solution every second hour, employing hot fomentations to the hypogastrium—now decidedly tympanitic—after intervals of fifteen minutes. Blisters to the thighs and ankles were also used; and after a trial of the fomentations for ten hours they were superseded by a large epispastic, embracing the entire anterior wall of the abdomen. The lancet was only employed once, because there was such a giving way of the powers of the system in ten hours after, as to contraindicate its farther use. On the eighth day, the delirium had become comatose; the paralysis was complete; the bowels still unmoved, reluctant, in a great degree, to yield only very small portions of the numerous injections which had been thrown up into them; the pupils were greatly disordered, the left being unequally dilated, while the right was greatly dilated; the breathing was stertorous and laboured; there was singultus; the extremities, nay, the surface generally, was cool; the position was constantly dorsal; and the prostration was extremely great. The wound was frequently examined, and uniformly presented a most favourable condition. After this

period, this unfortunate patient sank rapidly, so much so, as to have led me to expect death might take place on the night of the tenth day. He lingered, however, until the twelfth day from the operation, and expired in universal convulsions, the convulsions being more violent on the left than the right half of the body.

In reviewing the medical treatment of this case, I have only to regret that the lancet had not been earlier employed. If it had been used after the first convulsion, possibly the profound cerebral disturbances, and the incorrigible constipation, might have been obviated. In Kuhl's case, the remedy seems to have been productive of beneficial effects, and under circumstances similar to those which marked my own, especially the convulsions.

Case II.—The subject of this case was a healthy, robust young man, about twenty-five years of age, affected with false aneurism, resulting from a puncture of the internal carotid just above the bifurcation. The man had lost large quantities of blood from repeated hemorrhage; was greatly enfeebled in his muscular energies; was anæmic in an eminent degree, the blood barely staining a white cloth; short winded; liable to violent palpitations of the heart; his pulse constantly over-active, and distinguished by the characters peculiar to reaction from excessive losses of blood; he was liable to feelings of a virtiginous, or syncope-like nature; was pallid; had a remarkably pale tongue; his appetite was impaired as well as his digestion; and the bowels were almost constantly costive. Six weeks had elapsed from the time the wound was inflicted.

The operation was performed the 8th of March, 1842, and the region below the musculus omo-hyoideus was selected, as in the preceding case, for it. In this operation, which, in all respects, was executed like the first, no difficulty was experienced in any stage of its progress. The ligature was passed from within, conducted by the needle and forceps used in the first operation. And after being well satisfied that the carotid was the only organ included, after having first elevated the artery by making traction upon the ligature, the knot was formed, and the ends cut off near the knot. The wound was carefully sponged out, its opposing surfaces brought together, and confined in contact with strips of adhesive plaster, a compress and light bandage. The whole operation occupied probably ten or fifteen minutes' time, was not painful, at least so stated the patient, and not more than half an ounce of blood was lost. When the ligature was tightened upon the carotid, the man experienced a shudder, became sick and faint, from which he was, however, soon relieved by the application of ammonia to the nostrils, and a draught of fresh water, and free sweating followed. He now seemed entirely relieved from all unpleasant sensations, except the usual smarting, aching, &c., following surgical operations; was cheerful, in the hope that he would soon be well, and disposed to converse. He was put to bed, and desired to desist from conversation, and to sleep, if possible. Nothing of importance occurred until nearly 12 o'clock at night, about eleven hours after the operation was performed, at which time the man was seized with a rigor that continued, in greater or less degrees of intensity, until nearly seven the next morning. During this state, the mind was greatly alienated, and, in the use of the means for warming him, it was discovered that the left arm and leg were paralyzed, the operation having been performed on the right common carotid artery.

Second day, 7 A. M. Reaction was now very considerable, attended with an exceedingly rapid, convulsive, unsteady pulse. Although the action of the heart and arteries was tumultuous, the volume of the pulse was moderate, as well as its force; and, in all respects, much resembled the pulse during reaction from undue losses of blood in treating the more acute forms of typhoid fever. The delirium was intense; the thirst tormenting in the highest degree; great restlessness; headache, though badly defined by reason of the delirium, and an exceedingly hot skin. The pulse of the paralyzed arm was less full and strong than on the opposite side, and the heat of that side was less intense by several degrees. Vs. to fourteen ounces, and an active cathartic enema of strong salt water, were ordered. Refrigeration, both internally and by sponging with iced water, was also directed to be continued until the undue heat of skin moderated. 12 M. The bleeding was well sustained; the injections acted with moderate freedom, but not until three had been administered. The reaction and external heat were somewhat moderated; but the delirium and paralysis were not the least affected. I continued the refrigerants, using from this time half a grain of tart. antimon. et potass. in watery solution every second hour, with an enema of salt water every hour, and cold rice gruel as nourishment in small quantities, and after long intervals. 6 P. M. The symptoms the same as at last visit. I directed cal. ppt. ten grains; tart. emet. half a grain; nit. potass. seven grains every fourth hour, until free catharsis followed. Also, that rubefacients be extensively employed to the paralyzed extremities in succession during the night, and that blood be detracted at midnight to what extent the pulse would bear, supposed twelve ounces.

Third day, 7 A. M. Rested badly; indeed, the man had not slept two hours since the operation. The delirium profound; paralysis no better, pulse much enfeebled; skin still hot and dry; thirst intense. The calomel acted very imperfectly; I ordered the calomel, tart. emet., and nit. potass. to be continued; and epispastics to the legs and ankles of both lower extremities. Diet, the same as last visit. 12 M. Bowels freely acted on; delirium and paralysis unabated; extremities disposed to become cold; thirst still tormenting; and sleep of the dreamy, muttering description. The wound was now examined, and found to be doing well. 8 P. M. No better. Directed epispastics, which had drawn well, to be applied to the insides of the thighs, and a large one over the epigastrium to increase the means of revulsion. The calomel, &c., to be continued, but the intervals to be lengthened to five hours. Nourishment the same.

Fourth day, 7 A. M. Rested badly; delirium and paralysis the same as at last visit; bowels open, but the evacuation highly vitiated; retention of urine for the first time; debility increasing; occasional fits of coughing, but unproductive; breathing rather laborious; coolness of extremities increasing, requiring the constant employment of artificial heat to them; thirst unabated; position dorsal; occasional singultus, and a tendency to coma. Calomel, &c. to be continued; rubefacients to be employed to the upper and lower extremities, except to the blistered regions, in succession, till next day; epispastics to be kept on till next visit; artificial heat to be continued to the feet; and nourishment the same.

Fifth day. Symptoms decidedly deteriorated; delirium comatose; paralysis about the same; debility increasing; breathing quite laborious; cough more frequent with mucous rattle; tongue dry and foul, and teeth incrusted with dark sordes; singultus more frequent and troublesome; discharges from the bowels involuntary and fetid; retention of urine complete, requiring, as pre-

viously, daily catheterism. The wound again examined and found nearly closed by adhesion; was redressed. After this day no regular account of the daily progress and treatment of the case was preserved, believing it would speedily end in death. The symptoms progressively grew more unfavourable, and the treatment consisted chiefly of rubefacients, artificial heat, and incitants, when the powers of the system seemed to be rapidly giving way. On the twelfth day after the operation, instead of the tenth, as reported to the Committee on Surgery, from memory, death closed the scene.

In reviewing the medical treatment of this case, I do not know that any part of it does not meet my deliberate approval. Perhaps, had I such a case now to treat, I might urge bleeding farther, and possibly, too, resort sooner to the use of revellants. Whether any medical treatment could have corrected the conditions of the brain, upon which the grave symptoms of these cases depended, cannot certainly be determined. The operations were safely performed, as no other organ was touched or injured in the slightest degree, but those necessarily involved. And why were the operations followed by such untoward symptoms, and unfortunate results? This question I will next endeavour to answer, but will first state what were the post-mortem appearances.

In the first case, the body was examined eighteen hours after death. The abdominal cavity was first opened. The intestines were exceedingly pallid and bloodless, and extensively inflated with gas, which was fetid. The colour of the intestines was a pale yellowish-white. The stomach, spleen, liver, bladder, and kidneys, were also free from morbid appearances, save the remarkable paleness already noticed. The intestines contained little else than the medicines which had been used, and some brownish fæces. The thorax was next opened, and its contained organs, with the exception of the paleness, were found healthy and normal. The heart was singularly pale, and contained coagula, especially the right cavities, about the colour of softened glue, totally devoid of red globules. Like coagula were found in the pulmonary artery and aorta. About the usual quantity of serum was found in the different bags of the pleura. The lungs were perfectly normal and crepitant in every part of them. The encephalic contents were next examined. After removing the skull-cap, my attention was first directed to the left hemisphere, as the left carotid was the seat of the operation. The meninges exhibited no marks of inflammation. Upon removing the dura mater, or rather, after laying it open longitudinally, the hemisphere did not present the least vascular turgescence; and its convolutions were subsiding and shrunken; and the hemisphere imparted the sensation of fluctuation when pressed on opposite sides with the fingers. I plunged the scalpel into it and there was a gush of a thick semifluid about the colour and consistence of thickened milk. The opening was enlarged, and it was discovered that the entire hemisphere was in this state of ramollissement. I next examined the right hemisphere. Upon laying open the dura mater, which was free from diseased appearances, the convolutions of the brain were found turgid and plump, but presented no marks of previous inflammation. It was exceedingly pale, not only on its surface, but also throughout its interior. Its density was, perhaps, about normal. The cerebrum being removed, I next examined the cerebellum. This portion of the brain presented appearances very similar to those of the

cerebrum. The left portion was morbidly softened, while the right was nearly normal as to density, but pale. There were no traces in the cerebellum indicative of previous inflammation; and no more serosity was met with in any part of the brain than usual, especially on the right side.

In the second case, the post-mortem examination was made twenty hours after death. *Abdomen.* With the exception of the unusual paleness, the organs of this cavity presented no unusual appearance. The stomach and intestines contained very little matter of any kind, as the bowels had been freely evacuated two days before death took place; and the comatose state had prevented the use of medicines and food by the mouth during that time. *Thorax.* The organs of this cavity were also free from the marks of disease, and were normal, with the exception of their peculiar paleness. The bags of the pleura perhaps contained more serosity than is usually met with: six ounces were obtained from them in the aggregate. The heart, pulmonary artery, and aorta, contained coagula of pale yellow matter, without a trace of red globules, and were exceedingly pale. *Head.* Upon removing the skull-cap, the dura mater appeared exceedingly pale; and the right hemisphere, when pressed on with the fingers on opposite sides, imparted the sensation of fluctuation. When laid open longitudinally, so as to expose the convolutions of the hemisphere—the right—they were soft, yielding, and somewhat shrunken. Cutting into it, a yellowish-white semifluid was discharged, almost identical in colour and consistence with that of the first case; and the entire hemisphere was thus disorganized. The left was very slightly changed, in any respect, from its normal state, except that it was unusually pale and bloodless. The right portion of the cerebellum was also found disorganized and completely softened; while the left was, as the corresponding hemisphere of the brain, nearly normal, except its peculiar paleness.

By reference to the post-mortem condition of the hemispheres of the brain, on the sides of the operations, a clue is furnished, by which to account for the unfortunate termination of the cases in question; and, when taken in connection with the favourable state of the parts involved in the wounds, there cannot be a doubt that death resulted exclusively from disorganization of the hemispheres of the brain. In both cases, the wounds had nearly healed by the first intention; and there was neither inflammation nor pus, in any part of them, beyond what might naturally be expected, under the most favourable circumstances of such wounds. The arteries, too, had become nearly obliterated, and were sound and healthy, both below and above the ligatures. An organized clot of febrile cohesion, however, plugged up each carotid below the ligature; and the trunk was very nearly severed by the ligature. The walls of the wounds were very slightly thickened, and seemed healthy, except unusually pale. Indeed, this yellowish-pale aspect seemed to pervade every structure, nay, it even extended to the blood, and was, doubtless, due to anemia, brought on by the profuse hemorrhages, often repeated, anterior to the operations. But will this anemial condition enable us to account for the ramollissement of the brain? I think it will, as anemia is always connected with reduction of vital force; and, to the extent, in some instances, of barely sustaining the organic and vital actions of the economy. My object, in this

paper, is merely to suggest the idea, that the depressed condition of the energies generally, but especially of the brain, unfitted it eminently for the struggle in accommodating itself to the new vascular relations imposed on it, by cutting off the direct supply of blood through the main trunk of the carotid artery by the ligature; and the ramollissement followed, as mortification would do in an extremity, if operated on for aneurism, under like circumstances, in all probability. It has occurred to me during my many retrospects of these unfortunate cases, and I own that they have been numerous and intensely interesting, that possibly the usual anastomoses of the internal carotid and vertebral, might not have existed, and when the circulation was intercepted by ligating the main trunk of the carotid, the corresponding hemisphere was left entirely without blood. This thought did not present itself until long after the cases had ended, or I would certainly have tested its feasibility by injecting the arteries of the brain. In either case, the fact that grave cerebral disturbances often follow ligature of the carotid, points out the necessity of investigating their causes carefully, as well as expedients designed to ward them off, or to correct them. I think, in all cases, it would be safest and best not to intercept and cut off at once and completely the supply of blood by the carotid, in cases demanding its ligation; but to reduce the supply gradually, as the brain seems to bear it. This can easily be done, and it will enable the brain gradually to adapt itself to such changes as may be imposed on it by the operation. Should unpleasant effects follow, the full stream of the carotid might be restored, or such a portion as might be sufficient to support the exercises of the corresponding hemisphere. If no unpleasant effect follows, the supply may be gradually reduced, until, finally, it is cut off completely. And to accomplish these ends, I would suggest that a delicate double canula be invariably employed in the operation. If formed delicately, it will occupy no more space than the ligature, should the free ends be allowed to remain; and its presence in the wound would not prove irritating, to any dangerous extent, if at all. The only possible objection of any weight, that could be urged against it is that it might, to some inconsiderable extent, prevent union by the first intention. This, however, would be a small matter, when compared with the safety it would secure; but, it is questionable, if its presence in the wound could retard the cure in the slightest degree, as these wounds seldom, if ever, heal by the first intention. After unlooping the carotid with the ligature, its free ends may be passed through the barrels of the canula, and one of them secured to one of the ears. The other extremity being carefully tightened, the canula may be slid down upon the artery, where it can be confined by fastening the ligature to the remaining ear of the canula. Through the agency of this simple and handy contrivance, any degree of force may be communicated, either to cut off the supply entirely, or only partially; and should the hemisphere seem like suffering, or dangerous symptoms supervene, and it be deemed necessary to disembarrass the carotid entirely, the ligature and canula may both be removed at once, and without giving the

least pain to the patient, or without reopening the wound. Another mode of obliterating the carotid, as well as other arteries, in a gradual manner, may be effected, by transfixing the vessel with delicate pins or needles, so as to destroy the arterial tissue of the part, and cause its gradual contraction and final obliteration. This expedient I have employed, but not with the larger order of arteries, and think well of it. If the transfixing is effectually done, entirely around the artery, for eight or ten lines in extent, it will seldom fail to cause the obliteration of arteries of moderate calibre; and the larger order I should suppose would be equally liable also to its obliterating effects, if the agency is effectually used.

In conclusion, I will merely state that an error has crept into the closing paragraph of the Report of the Committee on Surgery, touching the autopsy of my cases as respects the softening of the brain. The softening was on the side of the operation, and not, as stated in the report, on the opposite side. It is probable that I committed the mistake myself, in the hasty preparation of the paper transmitted to Dr. Norris, as I have found it difficult to avoid a like one in drawing up this.

Prince Edward Court House, Va., *March 2d*, 1849.

Art. IV.—*Case of Lead Poisoning, with Recovery.* By Jno. C. Dalton, Jr., M. D. Read before the Boston Society for Medical Observation, June 5, 1848.

Eliza T., a healthy looking child, four years of age, with light hair, brown eyes, and a delicate skin, entered the Massachusetts General Hospital, April 8, 1848, with partial paralysis of the upper and lower extremities. The friends reported that she, as well the other members of her family, was generally healthy; that three months before entrance she was first noticed to be weak in her feet and legs—more so on some days—less so on others; that this weakness gradually increased, with short intervals of temporary improvement, until she entirely lost the use of her lower extremities; so that for the six weeks preceding her entrance she had not been able to stand. Her hands had also become affected in a similar manner, the paralysis having been noticed in them about a month after it was first observed in the feet. She had had blisters and leeches to the spine, but no other treatment. For the last two weeks she had been rather improving, but was still nearly helpless.

At the time of her entrance, she presented the following appearances: Her countenance was fair, slightly pallid, in good flesh, and without decided morbid expression. She had, however, a certain air of flaccidity, or softness of tissue, which we often see in children not absolutely invalids, but which still seems not quite compatible with robust health. Her manner was depressed, timid, silent. She passed most of her time sitting upon the bed, and while in this position her feet dropped over, and inclined inward, so as nearly to rest on their inner border, apparently from paralysis of the extensors which should

have supported them in an upright position. The toes also remained moderately flexed, and she could not extend them. There was much apparent laxity of the ankle joint, and the patient was incapable of moving the feet, or of supporting the weight of her body upon them. When she was lifted up in the arms of an assistant, she cried out, and drew up her feet under her body, for fear she should be made to attempt standing on them. The feet also appeared to be tender, as she cried whenever they were freely handled.

The hands were paralyzed to about the same extent as the feet. They hung down at right angles from the forearms, and could not be raised at the will of the patient. The wrist-joints looked flaccid and powerless, like the ankles. When the forearms were placed in the supine position, and then pronated, the hands dropped suddenly down into their hanging position, as if they had been attached to the forearms by hinges. The flexors seemed also to be somewhat paralyzed, but not nearly so much as the extensors, since she could take hold of a stick and pull upon it with considerable force. There was no well-marked emaciation, except of the bundle of muscles composing the ball of the thumb. These were wasted almost entirely away, so that the shape of the metacarpal bone of the thumb could be distinctly traced through the integuments.

There was no tenderness, curvature, or other morbid appearance about the spine. The skin was of natural temperature, a little dry. Pulse 140, rather feeble. Respiration quiet; appetite reported good; tongue of natural colour, clean and moist. There was a distinct dark blue line on the edges of the gums about the upper incisor teeth;—none elsewhere. The gums were otherwise quite natural. The patient complained of no pain, except when an attempt was made to move her hands or feet; she would then cry out, apparently as much from fear as from actual suffering.

On further inquiry, it appeared that, for nearly a year past, the patient had been subject to constipation and to occasional attacks of nausea and vomiting. These attacks were never very severe, and lasted usually about two days. With these exceptions her health had been good. She had never had colic at any time. Three months ago she had one of her attacks of nausea, and about the same time went to live at Charlestown, where she resided for a fortnight. She had nausea occasionally during the time, and when she returned to the city her friends first observed the weakness in her legs and feet. Since then she had often been irritable, and cried as if in pain, but had never referred her distress to any particular part of her body or limbs. Her intelligence had never been affected.

While in Charlestown, she lived at a house where the family use, for drink, "hard water" from a pump. For three weeks previously, she had lived at the "Hanover House," Hanover St., where they use spring water. For two months previous to this, she had lived at No. 21 Porter St. The only water used here is "aqueduct water," from Jamaica Pond, which is brought to the middle of the street in wooden tunnels, and thence distributed over the house through leaden pipes. While here, she was reported to have been much neglected by her parents, and often exposed to cold and wet. The family living at this house had all been well during the past year.

For six weeks previously, the patient had lived at No. 5 Medford Court, which is supplied with aqueduct water, also brought to the middle of the street in wooden tunnels, and distributed over the house through leaden pipes. Several members of this family had been repeatedly troubled, during the past year, with pain in the abdomen, sometimes accompanied with diarrhœa, sometimes not. The mother of the patient had lived with her at the above-men-

tioned places, and reported herself to have been quite well during that time. Since the commencement of her illness, the patient had lived at a house in Dover St., where aqueduct water is used through leaden pipes, as in Porter St., and Medford Place.

She had had no medicine during the past year, except castor oil and senna, occasionally administered by her mother.

The history and symptoms of the case were considered as indicating, in a very satisfactory manner, the poisonous influence of lead. The patient was immediately put upon house diet, and the use of the following: ℞. Acid. sulph. aromat., ʒi; sulphur. sublimat., ʒi; sirup. limonis, ℥i; mucil. gum. acac., ℥vi; M. Sumend. ʒii, ter in die. Two days afterwards she had some looseness of the bowels, with pain, and the dose was restricted to twice a-day; after which her bowels continued regular.

On the 15th, two caustic issues, each one inch long by half an inch wide, were made, one on each side of the upper cervical vertebræ. After the separation of the sloughs, the issues were kept open by dressing with ung. inf. cantharid.

Under this treatment, she soon began to improve. On the 20th of April, not quite two weeks after her entrance, the record was as follows: "Some improvement, apparently, in hands; can extend fingers, especially those of left hand, somewhat; wrist-joints, also, seem not quite so flaccid. Ankles still perfectly loose and powerless. Otherwise same. Pulse 140. Tongue and skin natural. Appetite good. Bowels regular. Blue line remains round upper front gums."

On the 27th, one week later, it had become certain that she was regaining her muscular power. The record of that date says: "Undoubted improvement in hands, and also in feet. Can extend fingers more than at last date, though this movement is still very imperfect. Wrists continue 'dropped.' Feet and ankles remain same in appearance, but patient can bear a little weight on them without complaining. A little pain in bowels once since 14th inst.; none else. No more vomiting. Always takes food with relish. Bowels open once, sometimes twice a-day. Discharges quite natural in appearance and consistency."

From that time, her improvement was constant and uniform; without any sudden alteration, or the development of any new symptom. On the 11th of May, one month after her entrance, she walked into the next ward, with only a very little assistance from the nurse; and about this time she began to be carried out into the open air whenever the weather was sufficiently mild. On the 25th of May, six weeks after her entrance, the record was as follows:—

"Is no longer confined to bed, but walks about ward most of time. Usually supports herself by placing hands against sides of room, but can walk a short distance without any support. Has improved in flesh and aspect. Manner less timid than on entrance. Pulse 108. Blue line almost gone."

During the first three weeks after her entrance she had frequent and scanty micturition; so that the nurse, as she reported, was obliged to attend to her almost every time she came into the ward. The passage of urine, however, did not at any time appear to be accompanied by pain. No systematic analysis of the secretion was resorted to, and no test was applied for lead, except the addition, on several occasions, of hydrosulphate of ammonia to the unconcentrated urine. This never produced any discoloration.

The blue line faded from the patient's gums in about the same proportion as the strength returned in her feet and hands; and her manner, which was at first depressed and timid, became gradually more confident and cheerful.

She has now so far recovered, that she walks about without assistance, quite as much as children of her age usually do; and the only remaining vestige of her paralysis, is a certain awkwardness in the movements of her feet, which, however, constantly diminishes. The tenderness of her lower extremities has nearly, though not quite, gone; and there is no trace of the blue line to be detected on her gums. The hands are still slightly emaciated.

She has continued, without alteration, the medicine which was prescribed at first; and the issues which were made soon after her entrance are still open.

The rapidity of her pulse, which was a well-marked symptom, continued for a long time.

On the	10th	of	April, it was	140.
" "	13th		"	140.
" "	14th		"	144.
" "	20th		"	140.
" "	27th		"	148.
" "	3d	of	May "	136.
" "	19th		"	120.

It is now pretty regular at 108, which, I suppose, is not a great deal too rapid for a female child, four years of age. Sometimes, however, it gets up to 120 towards night.

There are several points in the above case, which deserve particular attention. And, first, with regard to the palsy:—

1. This is generally confined to the upper extremities, and its most characteristic phenomenon is the appearance of the wrists, which hang loosely down from the forearm, and have acquired the expressive name of the "dropped wrists." Indeed, Dr. Watson would lead one to infer that the palsy from lead never affects any but the upper extremities. Pemberton, also, in his treatise on "Various Diseases of the Abdominal Viscera," mentions only the paralytic wrists, as a consequence of poisoning by lead. In the case which has been related, however, the lower extremities were paralyzed quite as much as the upper; and the affection had already existed in the former for a month, when it first appeared in the latter. The case, however, is not absolutely anomalous in this respect. It is stated, by Dr. Darwal, in the *Encyclopædia of Practical Medicine*, that lead palsy affects the "upper extremities" only, very rarely the inferior. A writer in *Tweedie's Library*, ii. 283, says: "It has been rarely observed in the inferior extremities, the hands being generally affected, though the palsy sometimes extends to the forearms. In his treatise on "Diseases of the Abdomen," in the chapter on Lead Palsy, Andral has the following sentence: "In other individuals, but much more rarely, we have ascertained the existence of complete or incomplete paraplegia, with exaltation of sensibility, and acute pains in the paralyzed limbs. In some, the upper extremities were not at all affected; in others, there was, at the same time, greater or less debility of the upper extremities." Sir George Baker, also, in an article in the third volume of the *London Medical Transactions* says: "In some patients the legs have been

paralytic for a night; and some, but not very many cases, have been remarked, in which the paralysis of the legs has been lasting."

In the case of Caroline Bright, who was in the hospital with lead palsy, in the early part of 1847, the lower extremities were partially paralyzed. The record of January 8th says: "Is not able to rise from chair; but, when up, can walk without assistance." In the case of Bridget Masterton, who was in the hospital about the same time, both upper extremities were entirely paralyzed, so that they hung down powerless by the patient's side, though she could swing them backward and forward, as if they had been attached to the shoulders by hinges. Andral mentions similar instances. "We have seen it," he says, "affect the entire upper extremities, which became altogether deprived of motion."

2. This paralysis is not accompanied by any diminution of sensibility; but, on the contrary, is particularly characterized by pain and tenderness of the paralyzed parts. The report of Bridget Masterton's case, already alluded to, is as follows: "Has much pain shooting down the limbs; never any loss of sensation in the paralyzed parts." In the case of Caroline Bright, the pain was so prominent a symptom as to lead the physician at first to overlook the paralysis, which was slight, and to diagnosticate the case as one of pure neuralgia. Andral speaks of the pain as a very important symptom. "The most common," he says, "of the nervous disturbances produced by lead, consist in pains in the extremities, and principally in the arms." "Thus we find exaltation of the normal sensibility and diminution of motion combined." He then proceeds to compare this condition of things in the arms, with that which takes place in the intestines, "where, at the same time that pain exists, there seems to be a diminution of the normal contractility of the muscular tissue."

3. Lead palsy does not usually show itself until after several attacks of colic. Pemberton gives the history of the disease as follows: "But after a person has suffered repeated attacks of this colic, he not unfrequently falls into epilepsy, or becomes paralytic in the hands." Dr. Watson, also, in describing the course of poisoning by lead, speaks of the palsy as occurring after several attacks of colic. In the above case, however, the patient had never suffered any such attack, so far as could be discovered. Nausea and constipation were her only previous symptoms referable to the action of lead. Dr. Watson, however, himself admits that, in a few instances, he has known the usual order of things reversed. "The wrists have become dropped, where there had been no preceding colic." Pereira says, also, in the article on Lead, in the first volume of his *Materia Medica:* "The palsy may occur without colic, or it may come on while the patient is suffering with it; but in general it succeeds colic." Dr. Darwal, in the *Cyclopædia of Practical Medicine*, says: "When the colic has endured for some time, and *occasionally when it has not been present*, there results a peculiar paralysis,* &c."

* Sir George Baker, in a paper published in the *London Medical Transactions*, 1785 speaks as follows: "It may likewise be observed, that the symptoms of this malady (lead-

4. The paralysis is accompanied by wasting of the muscles, and authors speak particularly of that bundle composing the ball of the thumb. In the above case, the atrophy of these muscles was very well marked, as has already been mentioned. I think, however, it will be found that emaciation of the hand always shows itself particularly in these muscles, whether resulting from lead or any other cause. It was at one time supposed that this atrophy was occasioned in painters by the constant pressure of the handle of the paint-brush against the ball of the thumb; but this opinion was given up after the wasting was observed to take place in the left hand equally with the right.

5. The blue line round the gums, as a symptom of poisoning by lead, was first noticed by Dr. Henry Burton, who gives an account of his discovery in a paper read before the London Medical and Chirurgical Society, in January, 1840. He reports fifty patients, who presented this symptom while under his charge, thirty-six of whom had lead colic, and the remaining fourteen were under the influence of acetate of lead given as a remedy for pulmonary disease. Many of these fourteen were watched from the time they began taking the acetate, and in two of them the blue line appeared in the course of four days, after taking one of them, fifteen grains; the other, twenty-four grains of the salt of lead. Two others, had it produced after seven days. Dr. Burton also reports a case, in which a Mr. Moyle, of Chacewater, produced the blue line in twenty-four hours by giving twenty grains of the acetate of lead in four doses. A man, by the name of Cornelius Sullivan, in the Massachusetts General Hospital in May last, had colic and the blue line produced after taking fifty-eight grains of the acetate of lead in six days.

The medicine was given as a remedy for purpura hemorrhagica with epistaxis.

Dr. Burton speaks with the greatest confidence of this symptom as a pathognomonic sign of the influence of lead. He states also that the discoloration precedes all other unequivocal symptoms produced by lead, so that it is of great value as a warning to the physician that his patient has been fairly brought under the influence of the remedy. I am informed, by Dr. Dana, of Lowell, that Dr. Burton was preceded several years in his discovery of the blue line as a symptom of lead poisoning, by Tanquerel, a Frenchman, who published an account of his observations so early as 1837 or 1838. But I have not met with Tanquerel's book, and am unable to give any account of its contents.*

poisoning), do not always follow each other in a regular and stated order of succession. Muscular pains in various parts of the body have tormented the patient some time previously to the attack on the stomach and bowels. It has likewise happened that the disease has first made its appearance in a paralytic condition of the wrists."

* This was before the publication of Dr. Dana's translation of Tanquerel's exceedingly complete and valuable treatise on "Lead Disease." Though that treatise gives the results of a much more thorough investigation than had ever been made before, I believe the views expressed in this paper, will be found generally in accordance with the statements of Tanquerel. J. C. D.

Other effects of lead had been noticed previous to the appearance of Dr. Burton's paper. Thus Christison states that the saliva is increased in quantity, and bluish in colour. Dr. A. T. Thomson also says that the saliva assumes a bluish colour. Dr. Burton, however, doubts the accuracy of these statements; for in all of his patients, who presented the blue line, the "substance of the gums, the smell of the breath, and the color and quantity of the saliva" remained the same as before its appearance. "I do not wish to assert," he says, "that salivation and turgidity of the gums are *never* produced by the internal operation of lead, but I venture to affirm that they are rare occurrences, and not characteristic of its influence."

The blue line may occupy either upper or under gums. In the case of Caroline Bright, it is reported as being "along upper and under edges of gums." Bridget Masterton had a "blue line next the teeth on under gums, and slightly on upper." In the case of Cornelius Sullivan, it appeared very distinctly on the edges of all the gums both on the upper and under jaw. In the case of Eliza T., it was confined to the edges of the gums belonging to the upper incisor teeth. It is not always easy to determine its exact situation. In Caroline Bright's case, the discoloration appeared to be seated rather on the tooth than on the gum. It has been thought by some to exist in the tartar collected around the teeth. It does exist, however, where there is no tartar. Dr. Watson relates a case in which the discoloration existed everywhere, except at those points where the teeth were wanting. In the case of Eliza T., I was able to make out, with tolerable certainty, that the blue line was situated in the substance of the thin edges of the gums. There was no tartar, and the gums were otherwise quite healthy.

Although Dr. Burton distinctly states, that the blue line precedes all other symptoms of lead, he does not say whether it remains after the other symptoms have passed off. The truth seems to be, that it is more permanent than colic, but about equally so with paralysis. It has already been mentioned, that in Eliza T.'s case, the discoloration faded from the gums in about the same proportion as the patient regained the use of her feet. In the case of Cornelius Sullivan, who had colic alone, without any paralysis, the blue line was quite distinct about the gums for a week after the pains in the abdomen were entirely relieved.

6. Another important symptom of poisoning by lead is, the depressed aspect and manner of the patient while under its influence. In the case which I have reported, there was a remarkable timidity and *shyness*, considerably greater than is usually exhibited by children of her age; and, when frightened, she did not become boisterous and noisy, as children usually do, but cried in a quiet and hesitating manner, as if she were terrified into silence. In the case of Caroline Bright, this depressed and retiring manner was equally well-marked. Dr. Christison mentions the same thing, in the article on Lead in his Dispensatory. "It thus induces," he says, "in the first instance, severe dyspepsia, with obstinate constipation and *gloominess of mind.*" He also

speaks of the palsy as being accompanied, among other symptoms, by "great lassitude, restlessness, anxiety, and gloominess of spirits." (*Christ. Dispensatory*, p. 700.) Sir George Baker also says: "Sometimes the approach of it is announced by a leucophlegmatic and yellowish complexion, restlessness of mind and body," &c. &c. (*London Medical Transactions*, vol. iii.)

So far as has yet been ascertained, the poison of lead causes no very remarkable organic lesion in the intestines or the nervous centres. Orfila relates three autopsies after death from lead colic. One of these was that of an animal, which had been confined in a warehouse of "minium," or red oxide of lead, and had died in convulsions. There was found only a "somewhat distinct" contraction of the intestines. Another, was a patient in La Charité, in whom the "whole of the colon was shrunk in diameter," but no other morbid appearance was observed. In the third case, also that of a patient at La Charité, the colon and rectum are said to have been "empty, and exceedingly contracted." Andral reports six cases, in none of which was there any sign of inflammation, as e. g., redness, thickening, or ulceration. In one of them, he says, the calibre of the digestive tube was "neither diminished nor increased." In two others, the intestines were "rather dilated than contracted;" and, in a fourth, there was "nothing remarkable in the intestines; only, in some few places, they were contracted, and slightly strangulated, but without any trace of inflammation." Autopsies of persons affected with lead palsy, have been less numerous. Andral reports two, in which the brain and spinal cord were carefully examined, without any appreciable lesion being discovered. Another of his patients died with epileptic symptoms during an attack of colic, and, in this case, the nervous centres were equally free from disease. The poison of lead acts as well on animals as on man, which is, by no means, the case with all poisonous substances. It is stated by Dr. Dana, of Lowell, (Pamphlet on Lead-pipes,) that a horse "may take daily, for weeks, several grains of arsenic without any other effect than a softer and more silky skin. Pereira (*Materia Medica*) says, that one experimenter gave tartarized antimony to a horse in so large a dose as six drachms, "without perceiving any remarkable and permanent derangement in the exercise of the principal functions." Pereira states also, that among the carnivora, generally, opium has only a very slight narcotic effect. Lead, however, appears to act as energetically on animals as on man. In *Copland's Dictionary of Medicine* (Arts and Employments), an account is given of the effects produced on cows, sheep, &c., by pasturing among the lead hills of Scotland. These effects were principally constipation, colic, and convulsions. Orfila relates a considerable number of experiments on animals, made with a view to discovering an antidote for lead. In one of these experiments, five grains of the acetate were injected into the jugular vein of a dog without any immediate effect; but on the third day, the animal became dejected; on the fourth, his movements were tortuous and difficult, and his posterior extremities were weaker than the

anterior. He died on the fifth day. Unfortunately, only the lungs and stomach were examined; but these appeared uninjured.

The failure to detect lead in the urine of Eliza T., is no more than might have been anticipated from the results of previous experiments. Orfila, in the second volume of his work on "Poisons," speaks decisively on this point. "It will be in vain," he says, "in cases of colic produced by metallic effluvia, to have recourse to experiments made on the excrements and urine. Analysis proves that it is impossible in these substances to discover the lead. MM. Barruel and Merat examined the urine of a person affected with this disease. It was not at all disturbed by the addition of hydrosulphate of ammonia, and the part which subsided did not exhibit the least vestige of lead. On comparing the results with those given by the urine of a healthy person, they saw there was not the slightest difference."

The excrements were also examined for lead by the same chemists, but none was discovered. Since that time, however, Orfila is said to have detected lead in the urine of a girl who was poisoned by a large dose of the acetate. The case is reported in the *Bulletin of the Royal Society of Medicine*, at Paris, for 1840, a book which I have not been able to obtain.*

Dysuria was noticed as a well-marked symptom in the patient whose excretions were examined by Barruel and Merat. In the case of Eliza T., the nurse reported for three weeks after her entrance, frequent and scanty micturition without pain. In the case of Caroline Bright, the record says: "Urine reported natural; no dysuria, but occasionally obliged to pass it very frequently." In the case of Bridget Masterton, the urine is simply reported as "natural."

With regard to the prognosis and treatment in lead palsy, authors vary. Christison says (*Dispensatory*, p. 700), that the affection is "always very obstinate, yet, for the most part, curable under tonic treatment, graduated exercise, attention to the bowels, and avoidance of the cause of the disease." Sir George Baker speaks less encouragingly. "In this palsy," he says, "beneficial effects have in vain been expected, as well from the external application of stimulants to the part affected, as from the electric influence, however modified or directed." The bath waters, however, he thinks, have been beneficial, and he has known "more than a single instance of restoration of palsied parts after their use for several years." "Great benefit, too," he says, "has been derived from a course of warm bathing." Electricity and the warm douche are spoken of by Dr. Watson as "promising expedients."

I find in the records of the Massachusetts General Hospital, eleven un-

* Since more thorough and delicate analytical processes have replaced the comparatively bungling methods of earlier times, lead has been more frequently detected in these cases; as by Devergie, and by Tiedemann and Gmelin. It is now, I believe, sufficiently well established that, even in cases of chronic poisoning, the lead may, sometimes, be detected, not only in the urine, but also in the blood and bile, and in some of the solid textures, as muscles, brain, liver, &c.—J. C. D.

doubted cases of lead palsy, four of whom either recovered entirely, or were considerably improved; five were slightly improved, and two were discharged no better than when they entered. Three of them had already recovered from previous attacks, which had been simultaneous with an accession of colic. The two patients who recovered perfectly had neither of them had the paralysis for more than a week, and in both it accompanied an attack of colic. One of them had a warm bath daily; the other, no treatment beyond occasional cathartics.

Andral reports nine cases of palsy from lead, six of whom were either cured or much benefited while under treatment by strychnine and brucine. The others, however, experienced the specific effects of the drug without any improvement in the muscles.

On the whole, it seems to be the fact that recent cases of lead palsy, especially that accompanying colic, may recover without any other treatment than removing the patient from the influence of lead, and relieving him of his colic; but that cases of long standing are apt to be obstinate under any treatment, though still not hopeless. Avoidance of the cause of the disease seems, in fact, to be the most important and effectual of all remedies, and it is to that, more than to anything else, that I am inclined to attribute the recovery in the case which I have reported. Next come good air, good diet, and exercise in the open air. If these fail, electricity, Pemberton's splints, and strychnine would seem to be worth the trial. Sulphuric acid is entirely a theoretical remedy, but is probably harmless in itself, and indeed might be useful as a tonic, if not as an antidote. The healthy state of the brain and spinal cord in those cases which have been examined after death would not lead us to expect much benefit from counter-irritation near the spine or head.

It remains only to determine the method by which lead could have been introduced into the system in the case which I have reported;—and I think there is no reasonable doubt that this was accomplished by means of the water, conveyed through leaden pipes, which the patient was accustomed to drink. It seems remarkable that this fact, of the deleterious effect of water conveyed through leaden pipes, should so early have attracted attention, and yet should be doubted by so many intelligent persons at the present day. Vitruvius, in his work on "Architecture," condemns the use of lead pipes for conveying water, on account of the "cerusse," or carbonate of lead, which is formed in them; and Galen says, that water brought through lead pipes "makes those drinking it subject to disorders of the bowels." The subject has attracted attention at various times since then, but apparently has not even yet been definitely settled. In Kane's "Chemistry," it is stated that the impregnation of water by lead is prevented in general by the small quantities of saline matters, principally sulphates, which all ordinary spring and river waters contain. "No danger," he says, "is therefore to be apprehended from the supply of water to a city being conveyed through leaden pipes, and preserved in leaden cisterns; for *all water* of mineral origin dissolves, in fil-

tering through layers of rocks, in its passage to the surface, a sufficiency of saline matter to serve for its protection." The most detailed examination of this subject, however, seems to be that by Dr. Christison, in his treatise on poisons. It appears from his investigations that rain water, and even the purer kinds of spring water, will dissolve lead in considerable quantities, but that a certain proportion of saline matter, held in solution, prevents the action taking place. The most efficient of these protecting salts are the phosphates and sulphates; others are less so in proportion to the solubility of the salt produced by the combination of their acid with the lead. Subsequent writers seem to have remained satisfied with these conclusions. Dr. Dana, of Lowell, in a recent pamphlet, however, has taken a different view of the matter. His attention was called to the subject by the following circumstances. For several years previously, obstinate and repeated attacks of colic had been of frequent occurrence in Lowell, often remarkably numerous and severe in particular districts, and especially in one section of the city called "Chapel Hill," and its immediate neighbourhood. Some of these cases were accompanied or followed by paralysis, as in the instance of Caroline Bright, already referred to, who had lived for some time previous to her illness in this part of the town. On inquiry, it was ascertained that nearly all the inhabitants here used lead pipe to convey well water over their houses; and that, in several instances, these pipes, when removed from the wells, were found corroded to a considerable extent. And not only so, but in some cases the owners of houses had been obliged to take up and renew their pipes, because they had actually become perforated and incapable of holding water. I have in my possession a piece of lead pipe from one of these wells, the surface of which is irregularly corroded, as if worm-eaten, over its whole extent, and at several points complete perforation has taken place. This fact, therefore, that lead pipes *are corroded and perforated* by the water of some wells, is a sufficient refutation of the theory of its protection by saline matter, however respectable may be the authority by which this theory is advanced. Neither is the fact by any means a new one, though it seems to have been for a long time practically neglected. In one of Sir Geo. Baker's earliest communications to the London College of Physicians on this subject, there is a letter from a Dr. Wall, who gives an account of a certain family in his neighbourhood, of whom the mother was paralytic, and the children all subject to disorders of the bowels. Several of the family died, and the house was sold. The next occupant found the "leaden pump" belonging to the premises in so leaky a condition, from corrosion of the lead, that it was necessary to repair it, and the pump maker who was employed said that he had several times been obliged to do the same thing, on account of the same difficulty, during the stay of the original occupants. The same thing has happened in Lowell. Mr. David Dana, the most extensive plumber in the city, states, that he "used often to be called to repair pipes which had become leaky from the action of the water perforating them."

In view of these facts, Dr. Dana examined the subject with some care. He

ascertained that the natural waters of Lowell all contain saline ingredients, the most abundant of which are sulphate of iron, nitrate of lime, and chloride of sodium; and that the waters of the district called "Chapel Hill," abounded chiefly in sulphate of iron.

He concluded that, if natural waters contained only one salt, the exact proportion and protective action of which could be easily ascertained, the whole matter would be very simple;—but in point of fact, there are several salts existing together in solution in well water, very often in company with vegetable acids; and that these act on each other, and modify each other's action on the lead.

The dangerous results liable to ensue from this mutual action are principally threefold.

I. The production of chloride of lead, which is soluble in water.

II. The production of nitric acid, which readily dissolves lead, &c.

III. The production of carbonate of lead, which, though insoluble, is liable to be introduced into the system in a state of suspension, and is, therefore, nearly or quite as dangerous as if soluble.

There still remain two objections to the supposition that, in the case of Eliza T., the poison was introduced into the system in water conveyed through lead pipes. The first is, that an interval of five weeks took place between her being exposed to the influence of lead water, and the first appearance of paralytic symptoms. The second is, that none of her family were similarly affected. In answer to the first objection it may be stated, that the constipation and occasional nausea continued up to the time of the paralysis, showing that the constitution was under the influence of lead. Paralysis, however, may be produced after an interval of time without any intervening symptoms, as appears from a case referred to in the first volume of *Pereira's Materia Medica* (art. Acetate of Lead). "This patient, a boy, fifteen years of age, took from a quarter of a grain to two grains four times a day, till he had taken 130 grains, without any ill effect. A month after, he was seized with colic, which was followed by paralysis and death."

The second objection, viz., that none of her family were similarly affected, is one very frequently urged, not only by the vulgar, but also by medical men. In Lowell, it was found to be generally difficult, and often impossible to convince people of the danger of using lead pipes for conveying water on this very account, because all the inhabitants of a district did not feel the poisonous influence in an equal degree. In the case of Eliza T., when it was first suggested to the physician who had had charge of her, that she might have been poisoned by lead in the aqueduct water, he remarked, that "that was impossible, since she was the only one of the family who had been paralytic." But it would certainly be surprising, if the poison of lead were the only one whose action was not modified by particular idiosyncrasies. There are a sufficient number of instances on record, to prove that the energy of its action varies greatly with different individuals. Dr. Watson states, that "persons

have been known to suffer colica pictonum, in consequence of their sleeping for a night or two in a recently painted room." On the other hand, he has himself "seen a patient, who became affected with the disease for the first time after working in white lead for nineteen years." In Dr. Burton's report of his observations on the blue line, he remarks particularly on this modifying influence of idiosyncrasy. "For some of my patients," he says, "were much more obnoxious to its influence than others, under circumstances apparently similar." It will be remembered that the little girl, Eliza T., was very young, and had been, at one time, much exposed to the unfavourable influences of cold and moisture. This may, perhaps, have had some influence in making her more sensitive than others to the poisonous effects of lead.

ART. V.—*A Detail of certain Experiments, performed by Magendie and Bernard, in the College of France.* By WILLIAM H. ANDERSON, M. D., of Mobile, Alabama.

IN the winter of 1848, the writer of this article witnessed a large number of experiments, vivisections, &c., made by Magendie and Bernard, for the purpose of elucidating some of the more mysterious functions of the digestive, nervous, circulatory, and respiratory apparatus. Among others, a series of experiments was instituted, to ascertain the action of various poisons, the therapeutical effects of which have been much sought after of late years. We proceed to detail the facts relative to several of these medicaments.

Strychnia.—Of all the extracts, the alcoholic is undoubtedly the best, but even this is uncertain, and should be administered with caution. The great difficulty seems to be in arriving at a proper strength; for two preparations made precisely in the same manner, are frequently found to possess different degrees of activity. Trousseau was the first to remark this, in the case of a patient under his care at hospital Neckar. To obviate the difficulty, the alkaloid should always be given in substance, and the same rule holds good with regard to all the powerful alkaloids.

Strychnine is a very active substance, and when given in poisonous doses, either to man or the lower animals, it produces death by convulsions. Hence, it bears especially upon the nervous system. It has no action on the brain, and produces its effects equally as well when this organ has been extirpated. To prove this, Magendie removed the brain of several animals, and the administration of the poison was followed by the same effects. A careful analysis of the experiments of Bernard and Magendie leads to the belief that strychnine has a reflex action; that it acts on the periphery, not on the nervous centres. An exaggeration of the reflex action, therefore, is its true modus

operandi. Its peculiar action seems to be on the nerves of motion, yet to act on them requires the integrity of the posterior roots. Bernard exposed the *anterior* roots of the nerves going to a limb; he then cut the *posterior* roots, and applied the alkaloid to the anterior; no convulsion ensued; but by applying it to the posterior roots in a state of integrity, convulsions in the limb soon followed. The nerves of motion therefore became affected through the medium of the nerves of sensation.

However applied, strychnine cannot act before absorption takes place. When introduced into the veins, the effects are immediately seen. When it was placed in the cellular tissue of the foot, and the vessels between it and the heart tied, no action ensued. Some of the German therapeutists thought that when strychnine produced death, it did so by asphyxia, but this theory is disproved by the fact, that it kills animals that have no lungs. The true method of its action in *poisonous* doses is an exhaustion (*épuisement*) of the nervous system.

Nicotine.—The Virginia and the Cuba tobaccos are very rich in this principle, though both are inferior to that which grows in the south of France. There are various agents for the extraction of nicotine from the nicotiana tabacum, but ammonia is perhaps the best. When obtained in its pure state, nicotine is a liquid, slightly yellowish, and without odour. The works on materia medica generally attribute to it the odour of tobacco, but this is owing to a faulty manner of preparing it. When entirely deprived of the potash, which is in intimate association with it, it is quite free from odour; but, on the addition of the smallest portion of potash, the pungent odour of tobacco is immediately evolved. Nicotine is very volatile, very easily absorbed, and exceedingly energetic in its effects on the system. While its power bears principally upon the brain and spinal cord, it is at the same time an active purgative and diuretic. Almost all of the new comers in tobacco factories are lightly purged for several days, and even children, nursed by mothers who have lately become operatives, suffer from diarrhœa.

One drop of pure nicotine, given to a medium-sized dog, is followed by convulsions in all the limbs,—the forelegs suffering much more, however, than the hinder ones,—the respiration is very much quickened, and the heart's action accelerated. The eyes sink, and the animal becomes temporarily blind, owing to the third eyelid spreading itself over the eye. The blindness is not owing to any lesion of the optic nerve, as has been supposed. In addition to these effects, there are profuse salivation, an exaggerated secretion of urine, and active purging. In the course of an hour the violence of the effects passes off, and the animal calms—the posterior limbs yield their convulsions some time before the anterior. The next day, the dog entirely recovers. The post-mortem examination of animals killed by the introduction of nicotine into a wound, reveals nothing that will account for the symptoms. Bernard cut the pneumogastrics of a dog that had taken a poisonous dose, and the usual phenomena produced by it on the lungs and heart did not evince them-

selves. Death, however, occurred as quickly as if the nerves had not been cut.

Prussic Acid.—The action of this poison is rapid and energetic, absorption taking place the instant that it is applied to a proper surface. One drop of the anhydrous acid is sufficient to kill a middle-sized dog. As soon as the poison is absorbed, a slight tremulous motion takes place throughout the system; this soon increases to actual convulsion, which becomes more and more intense, until death closes the scene. While Bernard was preparing some of the anhydrous acid for experiment, he inhaled some of the fumes, and was immediately rendered senseless, with extreme difficulty of breathing. Several hours elapsed before he entirely recovered. A series of experiments was undertaken on a number of animals, in order to find out a counterpoison for such a destructive agent, and they resulted in the discovery that ether (sulphuric) was the best antidote, if immediately inhaled. In the course of the experiments, it was hoped that ether, largely taken, would prove to be an effectual antidote to a very large quantity of the anhydrous acid, for it was found that several animals revived, which had been previously etherized, although several drops of the poison had been administered. Subsequent experiments, however, proved that the dose must be within certain limits.

Prussic acid acts on the system of sensibility as well as that of movement, and its effects commencing in the cerebro-spinal axis are diffused throughout the body by means of the nerves. If the nerves going to a limb are cut, that member will not evince the phenomena shown by the others,—there will be no tremor or convulsions in it.

In addition to its powerful effects on the nervous system, Prussic acid has a peculiar action on the blood, so modifying that fluid as to render it incapable of oxidation. The bright red colour of arterial blood is owing to the absorption of oxygen. In *man*, this absorption takes place in the lungs, but in some of the lower animals, it is performed by means of the skin, and it may easily be seen going on, if the mesentery of a cat or a rabbit be exposed. The iron of the globules is the constituent that becomes oxidized, and Prussic acid has the power of preventing it from appropriating oxygen. A very feeble dose will, in a measure, put a stop to the process. This phenomenon presents itself out of the body, in the same manner that it does in the current of the circulation. Bernard took two tubes, into each of which he put a quantity of blood. Oxidation immediately commenced, but on the addition of a few drops of Prussic acid into one of the tubes, the process of oxidation was immediately arrested. What influence this property has in producing death is a subject well worthy of consideration. That the functional integrity of the cerebro-spinal axis depends upon a proper supply of arterial blood, there is no question. Either too much or too little oxygen in the blood impairs the action of this system; and it is the opinion of the author, deduced from witnessing many experiments with Prussic acid, that the beneficial effect of medicinal doses is often owing to its property of checking undue oxidation of the blood.

In various diseases, accompanied with accelerated respiration and exalted arterial action, there is reason for believing that the blood is overloaded with oxygen; and it is a fact worthy of notice that, in these very diseases, medicinal doses of Prussic acid exert a very salutary effect. As it is intended, however, merely to detail the experiments, and the well-ascertained facts that flowed from them, we will not speculate farther on this subject.

Among the preparations of cyanogen, the cyanuret of mercury is, perhaps, the most dangerous. If there be the smallest quantity of gastric juice in the stomach, death immediately ensues its administration. The gastric juice decomposes the compound, and liberates the Prussic acid in its purest form. Bernard introduced into the stomach of a dog, during digestion, a small portion of the cyanuret, and the animal died, in a few minutes, with all the symptoms of death by a poisonous dose of Prussic acid. On an immediate post-mortem examination, both the stomach and the brain emitted the characteristic odour of the acid.

If, from any cause, sulphuric ether cannot be obtained for inhalation, when a person has been poisoned with Prussic acid, the next best antidote is a solution of carbonate of potash, followed by a solution of the sulphate of the protoxide and the peroxide of iron. The chemical interchange of elements is very rapid, and results in the formation of the ferrocyanuret of iron.

Opium.—The experiments performed by Magendie and Bernard on opium, lead to the belief that it acts primitively on the muscular system, and that its energy as a poison, in any given case, depends on the degree of muscular paralysis it has produced. Its therapeutic effects, in small doses, are very variable, and depend upon age, idiosyncrasy, habit, and particular conditions of the body. Long-continued usage of the drug may so inure the system to its influence, that very large doses may be taken with impunity, so far as regards their immediate effect. The poison, however, is slowly doing its mischief, and sooner or later the tone of the muscular fibre becomes impaired, and the heart, losing its wonted vigour, is unable to drive the blood with sufficient force to reach the capillary tubes. Hence, congestion of the brain and a general stasis of the blood, are the constant effects of a poisonous dose of the medicine. If the heart did not partake of the languor of the muscular system, opium would perhaps not be so great a poison; but this organ, like the rest of the muscles, loses its contractility, and labours in vain to perform its functions.

Opium is one of those substances that act through the vascular system. It may be applied in a very concentrated form to a wound in a limb, and yet, if the vascular communication between the limb and trunk be cut off, no effect is produced. This has been proved by repeated experiment.

Want of vigour in the action of the heart, being the great danger in poisoning by opium, it would be natural to suppose that any substance having power to restore that vigour, would be a good antidote to a poisonous dose. And this is precisely what turns out to be the case with regard to coffee. Of

all known substances, coffee has the most influence in giving power to the heart's action; and it is in this way, establishing, as it were, the impeded circulation, that coffee is the best and most certain antidote to opium.

Digitalis.—There are several medicines which seem to have a double action on the system, that is, which have two distinct and separate actions, the one not being the consequence of the other, although it may follow it. Digitalis belongs to this class, since it contains two distinct principles—a sedative, and a diuretic. Its diuretic property is independent of the heart's action, for it may be combined with medicines which annul its sedative effects, and still the kidneys will manifestly be under its influence. Chemistry has not as yet succeeded in isolating these principles from each other.

Digitalis is a sedative, because it weakens the muscular system of organic life. If the abdominal cavity of an animal be opened, and the intestines exposed, after a sufficient quantity of digitalis has been administered, the heart's action will grow weaker and weaker, and the intestinal motion will gradually lessen until both will cease. This arrest of intestinal motion is not owing to debilitated circulation, because, while under the depressing influence of the digitalis, the heart's action may be easily strengthened by the administration of coffee, but the muscular coat of the intestines will remain unaffected, and continue to become enfeebled till it stops altogether. An experiment, verifying the above, may be easily performed on a dog of medium size, by dissolving in the serum of the blood one grain of *digitalin*, and injecting it into a vein. Digitalis acts through the vascular system, not the nervous. Bernard cut the pneumogastrics of a dog, and still it had its usual effects on the heart. The narcotic action of the drug, and the coma and convulsions that precede death, when it has accumulated in the system, are owing to deranged circulation in the brain.

Quinine.—The administration of this substance, in very large doses, is followed by coma, convulsions, dilatation of the pupil, and other symptoms denoting derangement of the brain. When death is produced, the autopsy reveals a good deal of irritation of the mucus membrane of the stomach. The blood is black, and not coagulable;—extravasation is found in various parts of the body; the brain is invariably congested, and the lungs much carnified.

Forty grains, given to a large dog, produce very serious effects, but do not in general kill the animal. At the end of two or three days, during which period he suffers much with coma, tremors, and convulsions, he recovers, but almost always there is paralysis in some part of the body, either in the hind-foot, the foreleg, or some part of the face.

In medicinal doses, quinine has a decided action on the heart; that is, if the subject be in a state of health. Ten grains, dissolved in acidulated water, and injected into the crural vein of a dog, produced an increase of the heart's action, both in force and frequency, and was followed by intense fever for several hours. The spleen being exposed to view, was closely observed, but there was no reduction in its size. In this particular, quinine differs from

strychnine, the latter producing a marked decrease in the size of the spleen. An enlarged and unhealthy spleen, however, seems readily to come under the influence of proper doses of quinine. This is proved by experiments on the lower animals, as well as by those performed on man. The surgeons of the French army in Africa report that, in the malarious districts of that country, it is by no means uncommon for dogs to have their spleens much enlarged, and that they are easily reduced by the administration of medicinal doses of quinine.

Quinine is administered by the stomach, by enema, by the endermic method (either on a denuded surface, or by the general bath), and by injection into a vein. Of these various modes, that by injection into a vein is the most efficacious. Ten grains, put into a vein, will have the effect of a much larger dose put into the stomach. When given by the stomach, it should always be administered in the state of fasting, the state of digestion greatly lessening its energy. It has been mentioned that quinine, in small doses, has a decided action on the heart, increasing its force and frequency and producing general fever. This is the case when it is administered in a state of health, and when so taken, the fever lasts as long as the medicine is in the current of the circulation. This is from three to five hours, at the end of which period it is eliminated by the urine, and the fever subsides. That depression of the vital power, which immediately precedes and accompanies ague, will rarely take place, when there is a sufficient quantity of quinine in the current of the circulation at the moment of its invasion; and it is for this reason that the remedy, when administered as an antiperiodic, is much more efficacious, and much more certain in its effect, if the quantity be taken three or four hours before the expected chill, than if the same quantity be taken in smaller doses during a period of eight or nine hours before, because, if there is any secretion of urine going on, a large portion will in this latter case have been eliminated from the system.

[A knowledge of the above fact, will have some practical bearing on the diseases of southern latitudes, since it often happens that the important effects of quinine (at times *vitally* important) are lost to the patient because the medicine is not in his system at the proper moment. We take advantage of this opportunity to make a few remarks with regard to the injection of quinine into the veins. We have frequently seen cases of congestive and bilious remittent fever, where we had every reason to believe that quinine was strongly indicated; but where, for substantial reasons, it could either be not given at all, or, if given, would have been devoid of effect. Among such cases are those where the medicine is ejected, in consequence of an irritable stomach, and also those where the patient apparently, though not really moribund, can no longer swallow. In these cases, it is usual to administer the medicine either by the rectum or by the endermic method; but when the depression of the system is very great, and the vital action almost extinct, the

absorbent power is in a great measure lost, and the good effects of the remedy are not experienced, because it lies like an inert mass in the system. At this period, the circulation of the blood still goes on, and, though partaking of the general impairment of the system, it is feeble and languid; yet still it reaches the nervous centres, and can convey to them materials capable of restoring and renewing their vigour. How often does it happen that, in the low stage we have described, the return of a slight chill will cause a congestion of the brain and lungs, and inevitably carry the patient to his grave; and with what anxiety do we look forward to the period of this return, hoping that it may be escaped or kept off by the intervention of art. If quinine, therefore, be an efficacious remedy; if it have the power of bracing up the nervous system, and preventing another agitation, and the fatal stasis consequent upon it, it is all important that it should, at such times, be put in the current of the circulation. In this country, the administration of quinine by transfusion has been little, if at all, used; but in Belgium and Holland, we have known it employed with the happiest effect; and since the process is easy and perfectly innocuous, we think it well worthy an extended trial. There are liquids which cannot with safety be injected into the veins, because the globules of such liquids are too large to pass the minute capillaries of the lungs. The due oxygenation of the blood is thus interfered with, and death is the consequence. But water does not belong to this class. At the temperature of the blood, it passes freely from the arterial to the venous capillaries, as is perfectly safe as the vehicle of medicines which are to be used by transfusion.

The injection of certain medicines into the veins was used in England and Germany some years ago; but it fell into disuse, because a German physiologist of distinction, making use of *oil* as the solvent of some remedy he wished to employ, invariably caused the death of his patient. The experiment (using oil as the solvent) was extensively tried on animals, and always with the same consequences. The true cause of death was sought for in vain, and it was reserved for the untiring industry of Magendie to discover it. The experiment that ascertained and proved this, was repeated in the presence of the writer, and it was found that the cause of death was a mechanical obstruction of the capillaries of the lungs. The globules of the oil being too large to pass, completely plugged up the finer tubes, and prevented the access of air to the blood. This fact being known, the method by transfusion will doubtless be again brought into use.]

Note.—During our absence from the United States, an interesting paper on the effects of quinine, in poisonous doses, was published in the *American Journal of the Medical Sciences*, April, 1847, by Dr. Baldwin, of Montgomery, Alabama. We have received this article, and for our experience relative to the various susceptibility of different individuals to quinine (both of the human species, and the lower animals), we must refer to it. We are pleased to say that the experiments of the French physiologists generally con-

firm those of Dr. Baldwin, at least so far as the symptoms and lesions are concerned which poisonous doses produce on dogs. These various effects having been given to the profession, in the paper of Dr. B., it is unnecessary for us to repeat them in this article. With regard to the relative susceptibility of the system to the influence of quinine when *injected into a vein*, and when given by the *stomach*, the French authorities differ from Dr. Baldwin; but it is highly probable that the latter did not perform a very large number of experiments to ascertain this fact particularly. In connection with the paper of Dr. Baldwin, we would state that the best antidote to the state of *quininism*, is an active and efficient diuretic. Under the action of the acetate of potash, combined with a very small portion of Prussic acid, we have seen patients rapidly recover from the poisonous effects of quinine.

Arsenic.—With regard to this substance, we have very little to say. Experiment proves that, however introduced into the system, whether by the stomach, through a wound, by inhalation, or in a state of gas, it always causes inflammation of the stomach, accompanied by some nervous and cerebral agitation. There are two peculiarities about arsenic, worthy of notice. The first is, the extreme slowness and great difficulty with which it is eliminated from the system. It rests a long time in the economy, and may occasionally be found in the blood after all symptoms of poisoning are gone. Its action on the blood is to render it black, to diminish its plasticity, and to make it very fluid. The consequence of all this is an infiltration of the tissues, and slight effusions of blood, particularly in the lungs; the latter are always found when animals have been poisoned by arsenic. Another striking peculiarity of arsenic is, its manifest affinity for the tissue of the liver. No matter how introduced, or how feeble the dose, if death ensues, arsenic may always be found in the liver. Even when time, or the intervention of art, has caused it to be eliminated from all other parts of the system, the liver will still be found to contain a sufficient quantity for the appropriate test to act upon. So true is this, that when a person is poisoned, in the provinces of France, they send only the liver to Paris for examination.

When arsenic is eliminated from the system, it goes off by the urine; and the iodide of potash is, perhaps, the best substance to expel it through that channel.

Ether.—The wonderful effects of ether upon the human economy, and the new era which its introduction caused in operative surgery, were sufficient inducements to submit it to the test of very varied, and often-repeated experiments. Not only did Magendie and Bernard undertake a rigid analysis of its effects on animal life, but Flourens, Longet, Beau, and a host of other distinguished physiologists, turned their attention to the subject, and illustrated, as far as possible, its mysterious agency in the production of anæsthesia. While these celebrated experimenters were observing the effects of ether on the lower animals, an equal number of the most enlightened practical sur-

geons were closely watching its action on the human system, and so fashionable had its employment at one time become in France, that even an abscess was scarcely ever opened by surgical intervention, unless the sensation of the patient had previously been lulled by the inhalation of the anæsthetic agent.

For the production of anæsthesia, the chlorohydric and acetic ethers are equally as efficacious as the sulphuric; but the latter, being in more general use, was chosen as the most proper variety for experiment. Sulphuric ether, applied locally, acts as an irritant and refrigerant, and to some of the animal tissues it acts as a solvent. When applied to the trunk of a nerve, it destroys the sensibility of that nerve. This it does by its refrigerant effect, ice possessing the property of doing the same thing; but ether goes further than ice; it dissolves the fatty matter of that part of the nerve, and paralysis follows as a consequence. When ether is applied to a muscle, it produces a kind of spasmodic separation (*écartement*) of its fibres, which is, perhaps, owing to its refrigerant effect on the nervous fibrils supplying the muscles.

When inhaled, ether is absorbed by the blood with astonishing rapidity, and when absorbed in sufficient quantity, produces a loss of sensibility, both general and special, a temporary change in the blood, and a general relaxation of the muscles of animal life. There are several degrees of etherization. In the first, the periphery alone of the nervous system loses its sensation; in the second, the nervous centres are taken; in the third, death is produced. The loss of sensation always retires from the periphery to the centre. Bernard exposed a part of the spinal column of an animal, so that he could freely get access to the anterior and the posterior roots of the nerves. Ether was then administered, and when the periphery was completely devoid of sensation, both the anterior and the posterior roots were still quite sensible; by continuing the administration of the ether, however, the roots lost their sensation, and the brain and spine came under its influence. The anterior roots first became insensible, thus beautifully corroborating the doctrine of recurrent sensibility. Beau performed the same experiments, and was induced to believe that there was in the skin a sensation of *touch*, and another of *pain*. This doctrine, too, seems to gain plausibility from a fact which we have often witnessed, viz., that a patient may be undergoing an amputation, and may feel distinctly that something is being done to the member, and yet not suffer the slightest pain from the strokes of the knife. His intellect, in the mean time, though somewhat clouded, retains integrity enough to recollect and appreciate remarks made by the surgeon and the bystanders.

Ether, to a certain extent, changes the colour of the blood. At first, little or no difference in colour is perceived; but by degrees, when the excitation goes off, the patient becomes pale, and the blood assumes a dark-reddish hue; both veins and arteries contain blood of the same colour. When etherization is pushed to extreme, blood passes freely into the chyliferous ducts, and the lymph and chyle are found to be of the same colour as the blood. At this period the lungs become congested, and death soon supervenes. It is an error

here to say, that the patient dies by asphyxia, because the blood does not become black, nor does it lose its property of coagulation; indeed, after death by etherization, the blood coagulates very rapidly.

The anæsthetic agents, may be used with impunity, to mitigate the pains of childbirth; and, if employed with judgment, no ill effects need be apprehended for either mother or child. We have often seen women in labour submitted to their influence, and while they produced annihilation of the sensation of pain, and sometimes occasioned profound sleep, the muscles of the interior retained their accustomed energy, and both heart and uterus contracted well. It will be seen that the effects of ether, in these instances, are just the reverse of those of digitalis.

In closing this article upon ether (and most of the arguments will apply equally well to chloroform), we may take occasion to state, that we have seen it often administered to the lower animals, and to the human subject certainly not less than several thousand times. We have seen every age, sex, and condition under its influence—from the octogenarian, at the Salpétrière, to the infant suckling at the foundling hospital. During the late revolutions in France and Germany, we saw it used on the wounded, under every variety of temperament and constitution—the athletic grenadier, in the full glow of health, subjected to its influence for the mere extraction of a splinter, and the broken-down pauper submitted to its agency, when life was almost extinct from the prostrating shock of a severe gunshot wound. With such experience, we can truly say that the cases in which it did harm, were too few to be taken into serious consideration. That death, in one or two instances, did follow, we cannot deny; but certain it is, we have never seen death occasioned by ether or chloroform, when they were administered with a due proportion of atmospheric air. It is not to be wondered at, that a patient should occasionally succumb to their influence, when they are suddenly thrown into the lungs, without any admixture of atmospheric air; but such fatal cases are no more argument against their employment, than are those *rare* cases against ablution, in which the patient, suddenly plunged into a very cold bath, never recovered from the shock.

Mobile, *July*, 1849.

Art. VI.—*History of Two Cases of Aneurism, treated in the Pennsylvania Hospital.* By George Fox, M. D., one of the Surgeons.

Case I.—*Inguinal Aneurism; compression—failure—ligature to the external iliac artery—cure.*—James Sparks, æt. 24, married a native of Ireland, and by trade a weaver, was admitted into the hospital, August 29th, 1848, with

an aneurismal tumour in the right groin. He is a slender, delicate-looking man, much reduced, and evidently suffering greatly; walks with much difficulty, being obliged to raise his limb with his hands. The history given of his case is that, about the middle of May last, having been engaged for some time previously in labouring work (digging, &c.), upon a farm, to which he had been unaccustomed, he first noticed a small swelling in his groin; not experiencing any particular inconvenience from it, he paid but little attention to it for about two months, when, finding it was increasing rapidly, he consulted a physician, and, by his advice, *under the impression it was an abscess*, poultices were applied, and opening it with a lancet proposed; fortunately, however, this was not done; he came to the city, and applied for admission into the hospital.

At this time, the tumour extended about an inch and a half above Poupart's ligament (pushing this upwards and forwards), and nearly four inches below it; pulsation strong, with the peculiar aneurismal thrill very distinctly marked; upon pressure, the whole sac could be emptied; it was, however, so tender and painful that an examination could hardly be borne.

Perfect rest in the recumbent position, and a restricted diet, were ordered for the present.

Finding, in our examinations of this case, that the circulation in the tumour and limb could be completely controlled by pressure upon the external iliac artery, we believed ourselves justified, prior to the performance of the operation, customary in such cases, to endeavour to effect a cure by means of compression applied to the artery above the tumour, upon the plan recommended by Dr. Bellingham, of Dublin, and others, although by no means sanguine of success, from the unfavourable situation of the disease, and the anticipated difficulty of properly adapting the instruments and continuing the pressure by these, or other means, sufficiently long.

The ingenious method pursued by Professor Knight, of New Haven, in the case narrated by him (see Number of this Journal for July, 1848, p. 255), seemed to us well adapted to the present one. Accordingly, several gentlemen of the medical class, in attendance upon the hospital, having kindly offered their services, at a quarter before six, in the afternoon of Saturday, Sept. 2d (having previously emptied the bowels by an enema), we commenced manual pressure, applied to the external iliac above the tumour; the assistants were divided into relays, each gentleman to be relieved every half hour.

12 o'clock, *Midnight.* No difficulty is experienced in controlling the circulation in the tumour, and very little pain or inconvenience to the patient; the temperature of the limb, especially that of the knee and foot, is much diminished; he is directed, if restless, a drachm of the solution of morphia (gr. j. to ℥j), to be repeated, if requisite, every three hours.

3*d.* 7 A. M. Suffered very little during the night; took one dose of the solution of morphia; the temperature of the limb more natural; the tumour is smaller, harder, and decidedly less painful; the urine is drawn off by the catheter.

4*th.* The only complaint made, is at the time of changing assistants; continue treatment.

5*th*, 6 P. M. Pressure has been kept up continuously; the temperature of the limb is rather less than natural; the pulsation in the aneurismal tumour is decidedly diminished in force, all pain and tenderness upon handling it has passed off, and the tolerance of pressure improves; but, in consequence of the difficulty in procuring assistants, their duties being exceedingly irksome and

fatiguing, I now applied a hoop tourniquet, making pressure at the same point.

8 o'clock, P. M. The instrument was well borne for the first half hour; we are now obliged to remove it, in consequence of the severe pain and suffering it produces, which may, in part, be owing to its not fitting as well as we desired. We again resorted to manual pressure.

6*th*, 5 P. M. All the assistants being tired out, we discontinued manual pressure, which had been kept up nearly four days and nights, and succeeded in adapting the hoop tourniquet, so as to control the circulation without producing pain.

7*th*. In the afternoon, upon adapting the instrument, the cuticle is found to be slightly abraded, and the skin looks bad, though no complaint of pain is made; a soap plaster is applied under the pad of the instrument, and an effort made to shift the point of pressure.

8*th*. Rested well; appears comfortable; the skin under the pad looks better.

14*th*. We are obliged to remove the instrument, in consequence of the difficulty of avoiding a slough produced by the pressure, which has been noticed for some days. The tumour is harder, firmer, and much diminished in size, the pulsation in it much less strong, in fact, none can be perceived when the limb is fully extended; we regret much the necessity of abandoning this method of treatment, as we believe it has been productive of positive and decided good; undoubtedly, the collateral circulation will be more readily and rapidly effected after ligature of the artery, and thus, one of the great dangers of the operation avoided.

25*th*. Slough has separated, excepting a small portion in the centre; the pulsation in the tumour is again strong.

Oct. 11*th*, 11½ A. M. In the presence of my colleagues, a number of medical friends, and the medical class, I applied a ligature to the external iliac artery. The incision was commenced just below, and three-fourths of an inch within the anterior superior spinous process of the ileum; it extended to about one and a half inches of the symphysis pubis, and was semilunar in shape. We then successively divided the integuments, fascia, and external oblique muscle, and, passing under the internal oblique and transversalis muscles, divided that portion of these muscles which arises from Poupart's ligament, also the fascia transversalis; the cellular tissue, &c., were next carefully separated till the artery was reached. I then passed a ligature under it with the needle of Professor Gibson, from within outwards; after my colleagues were fully satisfied, the ligature was tightened, and tied with a double knot—all pulsation in the tumour ceased immediately. The external incision was now brought together with one suture, and adhesive strips, and a compress of lint, wet with cold water, applied; the patient was then removed into the ward, and placed in bed with his limb enveloped in flannel, and bottles of hot water applied to his foot; the time occupied in the operation was sixteen minutes. Diet to be restrained to gruel and barley water.

1 P. M. Leg and foot cold.

3 P. M. Ordered a teaspoonful of the solution of morphia.

6½ P. M. Temperature of limb nearly natural; pulse 110; he makes no complaint; there is slight tenderness upon pressure of the abdomen, especially of the right side; coughing also gives some pain; directed another dose of the solution of morphia, and to be repeated through the night, if required.

12*th*, 11 A. M. Slept about half the night; pulse 132; skin hot, tongue furred; vomited once during the night; countenance anxious, tenderness as last evening; ordered a tablespoonful of neutral mixture every two hours, and

a pill containing calomel, gr. one-twelfth, pulv. Doveri, gr. j, every alternate hour.

5 P. M. Pulse 130; skin warm, no pain; coughing does not produce any pulsation in popliteal artery; continue treatment.

13*th*. Vomited once last night, which he attributes to the medicine; slept well; countenance less anxious; pulse 130; skin warm, very little tenderness upon pressure; slight discharge of pus from incision; the temperature of the limb rather less than that of the other; it is still enveloped in flannel.

6 P. M. Pulse 120, free from pain or tenderness; the temperature of limbs the same; pulsation in popliteal artery very perceptible.

14*th*. Slept well, without an opiate; pulse 112; skin pleasant; no tenderness, except near the incision; suppuration quite free.

15*th*, 3 P. M. Comfortable; pulse 108; bowels were opened last evening by an enema, the first time since the operation; discontinue medicines, and substitute pulv. Doveri, gr. v, three times a day.

17*th*. Doing well; pulse 104; suppuration from wound free and healthy.

18*th*. Upon removing the dressings, in the presence of the class, we noticed a small, dark-coloured vesicle at the bottom of the ulcer, caused by the compression, from which pretty soon commenced an oozing of dark, thick blood, evidently coming from the sac, as this diminished in size as the blood flowed; about three ounces were discharged.

6 P M. Very little discharge from sac since morning.

20*th*. Pulse 100; wound cicatrizing; very little suppuration, except about the ligature; oozing from the sac of the same kind of black blood continues, though small in quantity; bowels were open naturally.

22*d*. Doing well; discontinue Dover's powders; diet improved.

24*th*. Wound nearly cicatrized; pulse 100; appetite good; is cheerful, though he complains of pain shooting from the tumour down the thigh so great as to have prevented his sleeping during the night; the discharge from the sac is very small in quantity; ordered Dover's powder, gr. iiss three times a day.

25*th*. Slept better; less pain; discharge from sac continues slight; bowels are open daily.

27*th*. About midnight, the discharge from the sac was so great as to require the application of a bandage and compress, which arrested it; there is slight diarrhœa, for which he is directed a teaspoonful of paregoric, to be repeated if requisite.

Evening. Upon removing the bandage, there was considerable discharge of the same kind of dark, black blood. We find the ulcer looks livid and unhealthy; reapplied compress and bandage.

28*th*. Pulse 108; slight diarrhœa; ligature came away this morning, being the seventeenth day; oozing from the sac nearly ceased, not requiring the continuance of compression; ordered an enema of thin starch and laudanum.

29*th*. Oozing from sac slight; bowels still loose; repeat the enema.

30*th*. Doing well; bowels not open; oozing nearly ceased.

November 1*st*. Pulse 104; slept well; discharge from sac again increased; a mixture of blood and pus.

2*d*. Dressings soaked with the discharge of the same character; the tumour has nearly disappeared.

4*th*. Ulcer has a more healthy appearance; the discharge of blood and pus continues, though less in quantity.

Evening. Half a pint of bloody purulent matter gushed from the sac while dressing this evening.

5*th*. Discharge slight.

7*th*. Ulcer cicatrizing; another gush of bloody purulent matter.

10*th*. Complains of soreness about the tumour; the discharge slight.

11*th*. Half a pint of the same kind of discharge from the sac.

12*th*. Appears to be very weak; pulse feeble; perspiration last night profuse; ordered a wineglassful of the infusion of Prunus Virginiana, three times a day, and a half bottle of porter daily.

14*th*. Better; sweating ceased; discharge trifling.

15*th*. A large purulent discharge without any blood.

18*th*. Purulent discharge large in quantity; has continued till this morning; there is now none.

20*th*. Wound rapidly cicatrizing; the discharge from the sac is very slight.

23*d*. Purulent discharge from sac nearly ceased; he is allowed to get up.

25*th*. Slight serous discharge from sac; walks with crutches; can put his foot to the floor.

December 4*th*. Wound and ulcer cicatrized; no discharge from the sac since the 30th ult.

21*st*. Left the hospital well.

July 4*th*, 1849. Sparks visited us to-day; he is perfectly well; says he can run and jump as well as ever; he experiences no inconvenience whatever from the disease or operation.

Case II. *Carotid Aneurism; Ligature of the Primitive Carotid below the Omohyoid Muscle.*—Francis Wright, coloured, æt. forty-one, native of this country, coachman, was admitted into the hospital October 12th, 1848, with an aneurism of the right carotid artery. About four months since, he noticed a small tumour on the side of his neck, just below the angle of the lower jaw, which has recently been increasing rapidly, and is now three and a half inches in length by two and a half in breadth, extending down the neck to within about an inch and a half of the clavicle; it is exceedingly tender and painful; pulsation strong, with the aneurismal thrill well marked. His head is inclined to the right side; countenance expressive of suffering; unable to open his mouth without difficulty; the secretion of saliva is so profuse, he is incessantly endeavouring to expel it.

No doubt existing in the minds of my colleagues, or myself, as to the true nature of the affection (*though this had also been pronounced an abscess*), we determined to tie the primitive carotid. Accordingly, on the 21st, at 11½ A. M., in the presence of my colleagues, and the medical class, the operation was performed by carefully dividing the integuments, platysma myoides muscle, &c., at the inner side of the sterno-cleido mastoid muscle, to the extent of two and a half inches down to the clavicle; then with great care opening the sheath of the vessels, avoiding the internal jugular vein and par vagum, a ligature was passed under the carotid artery below the omohyoid muscle, in consequence of the tumour encroaching too low down to admit of its passage above this muscle. Immediately on this being done, before tightening the ligature, a peculiar, violent spasmodic action of the larynx occurred, resembling hiccough, probably owing to the exposure of the par vagum and the accumulation of saliva; this continuing, the patient was raised up, and the saliva discharged, when it ceased, and the ligature was then tied with a double knot; all pulsation in the tumour ceased immediately; the pupil of the right eye was noticed to contract at once, and continued so. A small cutaneous vessel was secured, the wound brought together with adhesive strips,

and the patient removed to the ward. Before the operation, his pulse was 76; soon after, it was 84. The operation occupied fourteen minutes.

6 P. M. Pulse 84; no diminution in size of tumour; pupil still contracted; has some pain in the back of head, and complains that, when he dozes, there is a peculiar lightness or swimming sensation in the head; has had a return of hiccough, which has lasted for about a half hour; it was at once relieved by a drink of mineral water—this, with barley water, is all he is allowed—directed a teaspoonful of the solution of morphia at bedtime.

22*d*, 9 A. M. Pulse 88; skin warm; tongue furred; slept none during the night; countenance, however, is much better, and he expresses himself as feeling more comfortable; pain in the back of head continues; tumour less tender and painful than it was before the operation.

6 P. M. Pulse 104; skin hot; bowels were opened by an enema, Dover's powder, gr. x, given at noon; still complains of pain on the back of the head, for which he is to lose five ounces of blood by cups to back of neck; Dover's powder to be repeated at bedtime.

23*d*. Slept little last night; the pain in the head was relieved by the cupping; now has slight pain behind the ear, but says he feels more comfortable than he has done for three months.

24*th*. Pulse 100, cheerful; slept part of the night, having taken a teaspoonful of the solution of morphia; is free from pain except in the eyes; the pupil of right eye contracted; the eye itself appears smaller than the other; the upper lid droops; the wound is suppurating; water dressings applied; the salivation still continuing, he is ordered a wash of sage tea, honey, vinegar, and borax.

25*th*. Pulse 88; slept but little last night, although he took the morphia; the tumour is evidently smaller; free from pain; can open his mouth better; in protruding the tongue, it is noticed to curve towards the right side.

26*th*. Pulse 84; slept most of the night, having taken the morphia as usual; complains of pain in the tumour, also in the upper part of right side of the chest, and of numbness extending down the arm; upon removing the adhesive strips, we find the wound looking well; union by the first intention at the upper part.

28*th*. Tumour much smaller; still complains of pain in it; has slept part of the last two nights; bowels are opened daily by enemata.

29*th*. Wound looks red and swollen; discharge from it slight; shooting pain in the tumour.

30*th*. Feverish; pulse 100; less pain in tumour; ordered a Seidlitz powder and neutral mixture, ℥ss every two hours.

Nov. 1*st*. Pulse 76; tumour diminishing; still painful to the touch; wound looks better; discharge more free; omit neutral mixture.

Evening. Return of pulsation in the tumour.

2*d*. Pulsation in the tumour very distinct.

4*th*. Pain in the head very severe; pulse 116; skin hot and dry; ordered four ounces of blood, by cups, from the back of the neck, and to resume the neutral mixture.

5*th*. Still feverish and weak; pulse 120; pain of the head relieved.

6*th*. Free from pain; pulse 96; tumour smaller and pulsation less evident; the discharge from the wound somewhat bloody; discontinue neutral mixture; ordered an improved diet, oysters and eggs.

9*th*. Ligature came away to-day, being the twentieth day; tumour decreasing; pulsation can still be perceived; salivation continues profuse.

13*th*. Improving; is allowed to get out of bed.

16*th.* Takes exercise in the open air; the tumour is not larger than a chicken's egg; pulsation still felt.

22*d.* Pulsation in tumour no longer perceptible.

25*th.* Wound healed, excepting a small spot where the ligature was; this is cauterized daily; the salivation diminishing; in all other respects, quite well.

Dec. 9*th.* In consequence of his great anxiety to get home, he is now discharged, cured.

July 7*th*, 1849. I have seen Wright several times since he left the hospital; he continues perfectly well; upon a careful examination, this morning, I am unable to find the least vestige of the tumour, or any other disease.

I am indebted to the house surgeons, Drs. Sergeant and Stillé, for many of the daily notes of the preceding cases.

ART. VII.—*Case of Cerebral Irritation.* By EDWARD R. SQUIBB, M. D., Assistant Surgeon of the United States Navy.

"THE attempt," says a distinguished author, "to analyze, distinguish, and describe all the external appearances of disease, cannot fail to assist the clinical student and young practitioner, whilst it serves to recall to the mind of the experienced those sources of evidence on which his judgments have been ever, though perhaps unconsciously, founded."

The following case having appeared to the writer to be quite anomalous, and having presented many difficulties in the way of clear diagnosis, is reported with a view to reproduce, in the form of an example, some information contributed to the profession in didactic form, principally by Drs. Gooch and Marshall Hall.

Another object in offering it is, that it may fortify some of the less experienced, against the difficulties with which it harassed the writer, in consequence of his ignorance of the peculiar affection, and of what had been written upon it.

The subject of the attack was a sergeant of marines, aged thirty-four; near six feet in height, rather attenuated, but not markedly so; light complexion, and eyes; dark-brown thin hair, and bad teeth. Sedentary from habit and want of occupation; addicted to the moderate use of spirituous drinks, but abstinent for one month, in consequence of the frequent attacks of gout, to which he was constitutionally liable; the curative powers of nature had become depraved, inactive, and inefficient. From the attacks of palpitation and uneasiness about the heart, from which he often suffered, and from a somewhat imperfect physical examination, he was supposed to have a simply hypertrophied heart.

During twenty-two months he had been on the sick list; once, for facial neuralgia; once, for dysentery; three times for gout, and once for gouty ophthalmia; and, for three weeks previous to his severe illness, he had "felt badly," and "eaten sparingly."

The case was of eleven days' duration, from its advent to established convalescence; its occurrence and progress being nearly as follows :—

On Thursday, March 22d, 1849, at one o'clock P. M., he was attacked, while exposed to the sun, in an open boat, with dizziness, ringing in the ears, and disturbance of vision, and a moment after had lost all sensibility. In this condition he was immediately carried on board ship; and, when first seen, a few moments later, he had partially recovered his sensibility, and was retching, but not violently. His body had become rigidly extended, and the surface was cold and moist. The countenance was red and swollen; the conjunctiva injected; the veins of the forehead distended, and the arteries of the neck throbbing visibly. The pulse was hurried, small, and irregular; and the breathing hurried, and interrupted by retching. The mind was disturbed, and there were constant complaints of intense "bursting pain" through the temples and upper part of the head.

Mustard cataplasms were freely applied to various parts of the body and limbs, with a hot mustard foot-bath. Six ounces of blood were abstracted, by as many cups, from the nape of the neck; the bared scalp was covered with cool, wet cloths, and the body placed in an inclined position, with the head elevated.

After these measures, the countenance assumed a more natural colour, although the eyes still retained an unnatural brightness, and the conjunctivæ were still injected; sensibility was restored; the rigidity and gastric irritation abated; the general surface had become warm, and the pulse more full and regular. The mind had become settled, and the throbbing pain in the head nearly gone. In the evening, a purgative of calomel and compound extract of colocynth was given, after which he slept tolerably well during the greater part of the night.

Friday. Continued better, with but slight pain in the head, augmented by motion, with slight febrile action throughout the day. No paralysis or rigidity; face and neck still reddened, and eyes injected, and shining beyond what was natural. About 6½ P. M., pain through the head began to increase, with throbbing, and was accompanied by increased redness of the neck, face, and eyes. Pulse became full and strong; skin hot and dry, with full recurrence of the intense bursting pain through the head; disturbance of the senses, and wandering delirium.

One and a half ounces of blood from each temple by cups; cool cloths to the head, and a hot mustard water foot-bath were directed, with the effect of abating all the symptoms within three hours, leaving much the same condition as during the day. At 10 P. M., directed half a grain of calomel, with one grain of the powder of ipecac. and opium, to be given every half hour during wakefulness. Alvine and urinary evacuations at 11; after which, he was restless, but without much pain until 4 A. M., when he slept during two hours.

Saturday, 6 A. M. Marked mercurial fœtor in the breath, and three hours later increased flow of saliva. No mercurial powders had been given after 4 A. M. 9 A. M. directed a saline cathartic, and creasote mouth-wash; was better throughout the day; pulse 95, soft, and more regular; skin cool, but dry; no delirium, and but little pain in the head. Intolerance of light and noise, with injection and brightness of the eyes still continued. 6 P. M. directed a small quantity of prepared tapioca; ptyalism excessive; has thirst, but can only take drinks when lukewarm, from the pain they cause in his mouth. Alvine evacuation at 11 P. M.; cool applications to the head continued assiduously.

Sunday, 4 A. M. Was seized with a chill; loss of sight, and partial loss of hearing; recurrence of the intense pain and delirium. Pulse 140, small, hard, and irregular; surface cold and moist; face and eyes red and swollen, with turgid veins and throbbing arteries. Three cups to the nape of the neck, and hot mustard water foot-bath were added to the cool applications to the head. In two hours and a half the skin had become warm, and of a good colour, the pulse had fallen to 120, and become full and regular, and the delirium had given way to a comatose sleep, from which, however, the patient was easily aroused by a loud tone of voice. Pulsations of the heart visible, and easily counted by the motion given to the bedding. 8 A. M. found him awake and composed, without much pain in the head, but much disturbed by the noise and light. Complained much of the soreness of his mouth and tongue, and of his inability to satisfy his thirst. Continued in much the same condition throughout the day, having taken some tapioca and tea. 8 P. M. Pain in the head increased; face red, veins turgid, arteries throbbing; pulse 130, full, and hard; upon which restlessness and delirium again supervened.

These symptoms had abated at the end of two and a half hours, and he passed the night principally in restless sleep, disturbed by frightful dreams.

At 10 P. M., commenced taking sulphate of quinia in solution, to the amount of two grains every four hours during wakefulness.

Monday. Was better during the entire day; countenance much more natural. Cool applications assiduously kept up during the day, and the lower part of the body kept warmly covered. Took some thickened soup three times during the day, and some pulp of bread and milk in the evening. Lukewarm milk and water, substituted for water as a drink.

Tuesday. Complained much through the day of tenderness and soreness of the scalp and eyes, and of certain parts of the legs and feet; the tender parts of the latter being of a marked livid hue. Mouth worse, but felt much the same in other respects; pulse 120, soft, and moderately full; surface in good condition; had free perspiration during the last night; substituted mouth-wash of hydrochloric acid for that of creasote. Quinia and diet continued.

Wednesday. Somewhat improved in every respect; complained of debility for the first time, and also of feeling "nervous," with feverish and chilly flushes. In the night, had a return of dizziness and pain in the head, but for a short time only, and not so severe as before. Quinia and diet continued.

Thursday. Complained chiefly of debility and soreness of his mouth. Refused to take the solution of sulphate of quinia on account of the pain it gave his mouth, and was whimsical and petulant throughout the day. 11 P. M. awoke from a quiet sleep, and had a fit of violent weeping, which he could neither account for nor control. Was much disturbed during the night by the palpitation of his heart, which he could plainly hear and feel throughout his body. These pulsations were so irregular and intermittent, that it was impossible to get ten successive beats, and frequently three or four strong throbs would occupy the time of double the number of natural pulsations. By estimation, the rate of the pulse might have been about 70. To the ear, this irregularity was even more marked. The sounds were all somewhat indistinct, although the impulse was unusually strong. The first sound appeared to be lengthened and roughened. Directed profound quiet of body. Sulphate of quinia to be resumed, and given in mucilage three times a day. Diet to be continued. Tepid sponging to the surface.

Friday. Much the same, except that the irregularity in the heart's action had settled into the regularity of omitting every fifth pulsation. The pulse

and chest were examined half hourly for five successive hours, during which this regular irregularity was distinctly marked. About 3½ P. M. became restless and feverish, the pulse rising to 122, becoming full, and losing its irregularities. This febrile access proved to be ephemeral, and he slept during a great part of the night with a quiet and comparatively regular pulse, having taken a fluidrachm of compound spirit of sulphuric ether at 9½ P. M.

Saturday. Much better; complained only of soreness of the mouth, and debility. Pulse 75, moderately full and regular; skin soft, moist, and of good temperature; sore blue patches on the extremities disappearing. Continued quinia and diet.

Sunday. Still improving; pulse 75, with very slight irregularity; evacuations nearly natural; sleeps well and quietly; appetite commencing; mouth much better. Continued quinia, and directed nutritious diet.

Monday. Convalescence established.

A month later, this convalescence was interrupted by an attack of the rheumatic fever, then epidemic at Rio de Janeiro, from which, however, he quite recovered, and was restored to tolerable health by the middle of June.

In the analysis of this case, it is necessary to observe that each man on board our vessels has a gill of whisky per diem issued to him, and that half this quantity is taken undiluted immediately before each of the earlier meals of the day. It thus becomes an habitual excitant to the stomach and appetite, rendering palatable the sound, but not very tempting diet.

About one month before the attack, the patient's stomach had been deranged by the free use of colchicum, and his spirit-ration stopped, after which he ate sparingly, and felt badly. The effect of anorexia and want of exercise, upon a somewhat depraved constitution and attenuated form, after two years' confinement on board ship, was inanition and consequent morbid nervous irritability—the predisposing cause of the attack. His duty rendered it necessary that he should remain for half an hour, at noon each day, in the fruit-boat, which came alongside at meal-times.

The direct rays of the sun of a tropical climate upon the flat-topped black leathern cap, produced a depression and relaxation of the system, inviting congestion from the hypertrophied heart to the least-resisting point, which, from immediate exposure and irritability, was the brain. Thus, in insolation and hypertrophy of the heart, the exciting cause may be recognized. The symptoms of the attack were unquestionably those of cerebral congestion, and the predisposing cause indicated that this congestion was a passive one—the result primarily of nervous irritation. The ready subsidence of almost all the grave symptoms, was yet stronger affirmative evidence, which the second, somewhat similar, attack might not overthrow. This second paroxysm had, in addition to the increasing nervous irritation, the powerful auxiliary cause of habit, or precedent attack; and the difference between the two might be attributed to succession and the effect of treatment. Then came the prompt and excessive mercurialization, affording, except for the possible effect of idiosyncrasy, conclusive evidence against the active or inflammatory character of the affection. The interval, consisting of the third day, passing without marked

febrile action, and without delirium or interference with sensation or motion, added yet greater weight to the already sufficient evidence. The two attacks of the fourth day, produced by the yet uninterrupted cause, and by established habit, and modified by increased susceptibility and treatment, only could serve to multiply opportunities for observation, and sources for confirmative evidence.

After this, the effect of a generous diet, an efficient tonic, and a nervous sedative could be predicted with great certainty, provided the vital forces were yet capable of responding to the assistance thus offered.

Thus, an experienced practitioner might have gone inductively through the case, without a desire unsatisfied, or a fear for the result: but it was not thus with the writer. Losing sight of the predisposing, in a nearer view of the exciting causes, the congestion was at first supposed to be an active one, and the second paroxysm was mistaken for a reaction, rendered tardy by the depressed condition of the vital forces, which was to usher in a meningitis. This view was not, however, adopted with the confidence of certainty, and therefore active depletory measures were postponed, and mercury was resorted to as a tentative. The effect of this latter agent was to still farther unsettle the adopted view. Yet the possibility of an idiosyncrasy, or of a temporary condition of the system, which might account for this mercurial sensitiveness, would not admit of the full adoption of what is now considered as the correct view of the case until the fourth day.

To exculpate the writer from having too readily adopted a view of the case, which was probably erroneous; or, in short, from having jumped at a conclusion, it may be remarked that he had frequently seen the active congestion or "sun stroke" before, and had always been able, by active antiphlogistic measures, to avoid the consequent cerebral inflammations which so commonly follow them, in persons temporarily resident in tropical climates: whilst he had never seen a congestion of this character, and was not properly acquainted with what had been written upon nervous irritation. However easy the diagnosis of this case may appear from analysis, it appeared quite the contrary to the writer when viewed synthetically; for, throughout its course, it proved to be of that class which affords little else than anxiety from whatever method of treatment, and distrust from all.

U. S. Brig Perry, at sea, *July 1st*, 1849.

ART. VIII.—*Notes of Hospital Cases.* By HENRY HARTSHORNE, M.D.

Lithotripsy.—More triumphant results of surgery have rarely been seen, than those of the instrument of Heurteloup, in the hand of the late Dr. Jacob Randolph, senior surgeon to the Pennsylvania Hospital. His numerous and beautiful operations in private practice are well known. At the opening of the winter of 1846–7, he crushed a stone in the bladder of a boy, nine years old, before the hospital class. The instrument was introduced several times, with a few days' interval, obviously producing *no pain*, and effecting an entire cure.

In the fall of '47, a young man nearly of age, presented with a large stone, which had been forming for many years. The same operation was performed. At the first sitting, the stone was caught in *one minute*, and in four minutes was broken three times. This was considered an unusually slow operation. The only pain was felt in the introduction of the instrument, which was little larger than the ordinary catheter. The fragments, which soon passed abundantly, were *angular*, some of considerable size. He suffered, at times, considerable pain in passing them, which was moderated by warm hip baths and flaxseed tea.

The instrument was introduced three times in three weeks. It was then shown, by the sound and by his sensations, that nearly the whole of the stone had passed away in pieces. He could then retain his water, six or seven hours.

About two weeks after the last operation, a large angular fragment became fixed in the urethra, near the membranous portion, and caused considerable irritation. After vainly endeavouring to extricate it by forceps, the bent probe, and the curette articulée of Leroy D'Etiolles, Dr. Randolph was finally obliged to cut it out externally. The patient left the hospital, and, as we were informed, recovered entirely.

Notwithstanding the protraction of this case, the contrast between lithotripsy and lithotomy in the hospital has appeared vastly in favour of the former, as to the amount of pain and danger of an unfavourable termination. Some cases of fatal peritonitis after the cutting operation are recollected, as well as some serious secondary hemorrhages. An observer in the wards would therefore incline to accord with the opinion of the distinguished surgeon just named, that lithotomy should be banished from surgery, or at least confined to a few exceptional cases. It is true, that dexterity in the use of the instrument is a requisite not to be acquired without difficulty; but a due appreciation of the advantages of the operation must cause the removal of this objection.

Parturient Peritonitis.—Ann Gideon, of feeble health for some time previously, was noticed on admission, pregnant, to be unusually enlarged. Near the time of her delivery she was attacked with very severe abdominal pain,

lasting sometimes for several days, accompanied by symptoms of congestion of the brain. The abdomen was enormously distended and tender to the touch. Diarrhœa also occurred. Her sufferings for some days before delivery were agonizing, night and day. The treatment was by opiates and gentle cathartics, with fomentations to the abdomen. She was delivered, very rapidly, of an anæmic child, which died the next day.

Her abdomen remained still in a state of uniform globular distension, as great as that of some women at full term. Tenderness was considerable, and pains occurred at intervals, especially in the back. Dr. Hodge considered the seat of the gaseous accumulation to be the peritoneum. Under mild palliative remedies, she recovered entirely in about two weeks after confinement.

Puerperal Fever.—A painful history of the prevalence of this malady at one time in the hospital was given by Dr. F. W. Sargent, in a previous volume of this journal. In the cases reported by him, the treatment by very large bleedings proved unsuccessful. I have at hand notes of three cases, where a plan, characterized by *large doses of calomel* and other cathartics, was attended by similar results. A few details of one may be related.

Bridget Gray, aged 25, was admitted 6th mo., 4th, 1847, and was delivered the same day, at 6 P. M. She was attended by the resident surgeon. There was, however, at the time, no erysipelas in the wards. The labour was short and ordinary. The lochial discharge was, she said (it was her fifth child), unusually abundant, and continued so till her third day.

She was perfectly comfortable the second evening, with the exception of an occasional after-pain. Before midnight, however, a heavy and protracted chill came on, with violent pain in the abdomen and back, followed by considerable fever. I found her at half-past two A. M., with a pulse about 120, and rather hard; skin warm; pain in the abdomen at its lower part and in the back and left groin, as well as in the head. Pain on moving the limbs, or taking a long breath, and tenderness on pressure, especially over the womb and in the left lumbar region. Milk very scanty, breasts flabby; but the lochial discharge still continued. I bled her at once, a few ounces; had sixty leeches applied over the uterine region, and gave four grains of calomel with one-third of a grain of opium, which was repeated in two hours, and followed by a dose of oil.

At 7 A. M. I bled her, by Dr. Hodge's direction, to the amount of twenty ounces. She bore this very well, and seemed somewhat relieved. Dr. Hodge also ordered hyd. chl. m. gr. x, p. opii gr. j, at once.

At noon, no fecal evacuation had been obtained. Two teaspoonfuls of magnesia and a laxative enema were ordered. Three hours later, as there was still no passage, Dr. H. ordered an ounce of Epsom salts. To relieve nausea and retching, small pieces of ice were allowed. Three or four evacuations were soon obtained, but in addition, a powder of calomel and jalap, ten grains each, was directed. After this she had four passages.

At 10 P. M., she was certainly more comfortable than at any time during the day. Skin pleasantly warm, pulse still over 130. She sleeps considerably. Neutral mixture was given, and a grain of opium every hour directed, if she suffered much pain or was sleepless, and venesection to be repeated if the pain was great and fever continued.

I saw her before four o'clock the next morning. She seemed uneasy; complained of increased soreness, although scarcely any pain when still. Pulse 120; skin warm. Bowels moved four times in the night. The venesection was not repeated. The grain doses of opium were continued at intervals of about two hours.

At half past 8, she was quietly asleep, and roused with difficulty. The tenderness of the abdomen seemed to have almost disappeared; she was somewhat narcotized; skin warm and moist; the tongue had been moist throughout; pulse over 120 yet. A warm poultice was applied to the abdomen, and ten grains more of calomel were given at once.

At 3 P. M., another dose of calomel, and a large blister was applied to the abdomen; pulse 130; skin warm; thirst great; the lochial discharge had become very slight; she had then no pain, except on motion; the tympanitis, before slight, was increasing.

Before evening, retching and vomiting of a yellowish fluid came on, with coldness and clamminess of the skin, and greater feebleness of the pulse—the whole aspect being that of great debility. Ice, effervescing draught, limewater, &c., were used to check the vomiting. Dr. Hodge also prescribed quin. sulphat., gr. j, every hour, and small quantities of milk punch. In a few hours she became tranquil and comfortable; but the vomiting returned during the night, with slight diarrhœa. Still no pain, except on motion. A sinapism was applied to the epigastrium, and forty drops of laudanum were injected into the bowels.

In the morning, port wine was substituted for the punch; the quinine being continued. The bilious vomiting and purging increased, however, and she died before midnight. An autopsy was made the next day, in presence of Drs. Hodge and Pepper.

The first fact noticed, was the total absence of peritoneal adhesions, and, indeed, of coagulable lymph, except a little immediately about the uterus and ovaries. The left ovary, in the region of which the pain had been first felt, was in such a disorganized state, as to leave little doubt of the existence of an abscess in it, which had ruptured. There was a very large amount of seropurulent fluid in the abdomen, perhaps thus to be accounted for. The uterus was *white* throughout; no decidedly morbid appearance could be detected in it. The intestines and stomach also were pale. The liver appeared to be in the natural condition.

I have also the notes of two other fatal cases, in neither of which did the symptoms commence till the third day after delivery. In both, severe pain occurred before any tenderness or soreness was felt, and at first the pain was

not constant. For one or two days, in each, the soreness and pain were confined to the region of the womb, and there was then no tympanitis. The inflammation afterwards extended, and took on all the characters of peritonitis. One died on the sixth day of confinement, the other on the eighth. One of them had previously had excellent health. The latter appeared decidedly better on the fifth day—free from pain, and without fever; but bilious vomiting came on, followed by *collapse*, and she died in spite of active stimulation.

There can be now no doubt of the truth and importance of the assertion, that epidemic and sporadic puerperal fever are different in type, and frequently require a difference in treatment. The sporadic attack is often less malignant. Observations in the hospital, have induced great doubt whether very large depletion and great reduction by calomel, or other active cathartics, give the best hope in the epidemic cases; while out-door experience constantly affords instances of cure, where many of the symptoms are the same, by moderate venesection, leeching, purgation, and small doses of calomel and opium. Practitioners have also sometimes recorded incapacity to bear much depletion in the epidemic cases, occurring out of the hospitals. It is on this idea only that we can reconcile the contradictory results of treatment in this terrible disease.

Puerperal Fever and Erysipelas.—The connection between these two disorders can be neither proved nor disproved by any facts observed as yet in the hospital; but a few things have been noticed with regard to them, which have some bearing upon the question.

Both have, many different times, *prevailed* in the institution, attacking a number of patients at once, or successively. At such times, not only surgical, but purely medical cases have become complicated with erysipelas; and once, at least, an officer of the house was attacked. Sometimes, though far from always, the epidemics of puerperal fever and of erysipelas have been simultaneous.

The *contagiousness* of neither has, in our cases, been well established—if that term be clearly distinguished from infection or epidemic extension of disease. A man, dangerously afflicted with erysipelas from a compound fracture, in a ward in the third story, was brought down and placed in a room with four or five other surgical cases, having one on each side of him, within a yard or two. No one received the disease. A woman was admitted by the attending surgeon, and a man by the physician, affected with erysipelas, but no other cases followed. These are named as instances only; but even a large number of them, being only negative facts, could prove very little. As it happens, however, my notes afford nothing to the contrary, which could not be more rationally ascribed to epidemic influence. I mean to say, that I recollect no case where the proximity of a patient to a case of erysipelas was followed by an attack, unless at the time the disease was obviously prevailing in the house.

Isolated cases of puerperal fever have also again and again occurred, in the midst of women, some of whom were delivered within a few hours or days of each other.

Whatever the fact may be worth, I find it noted that the only two cases of puerperal fever in the ward, for several months preceding 6th mo., 1847, occurred in women who were attended in delivery by the resident in charge of the *surgical* wards, in which erysipelas existed at the time. A number of other women, delivered at nearly the same time by the medical resident, escaped.

If, however, puerperal peritonitis be an internal erysipelas, why is there not often, especially in cases which recover, an accompanying *external* exhibition of the eruption? The vagina is sometimes inflamed when metritis exists, but very few examples are met with in which the skin partakes at all in the disease. Perhaps the hypothesis in question, if at all plausible, should suggest a more extended and persevering use of *counter-irritation*, by leeches and blisters, to favour the substitution of an exantheme for a mortal phlogosis within the abdomen.

Tincture of Iodine in Erysipelas.—The utility of this preparation, applied as a "cordon sanitaire," was repeatedly demonstrated, although it proved by no means infallible.

Erysipelas produced by Heat.—At a time when the wards generally were entirely exempt from the disease, two men were attacked, one in each of the only two rooms in the surgical ward, warmed by an open coal grate. Their beds were the nearest to the fire, and constantly affected somewhat by the glare, although sheltered by screens.

Purpura.—Three cases of general cutaneous ecchymosis, accompanied by swelling of the legs from effusion of lymph, and other scorbutic symptoms, are noted as cured by the acid and tonic treatment—viz., by lemonade, elixir of vitriol, tincture of the chloride of iron, port wine, and abundant vegetable diet.

Psoriasis.—This was removed entirely, in four or five instances, under the use of liq. potass. arsenit., tar ointment, and baths of flaxseed mucilage. Donovan's solution was occasionally tried, but was not long borne by the stomach.

Cases of Tetanus.—Five are recorded as having occurred in the hospital in four years. The first two were among the *coincidences* so frequently observed there. Two boys, each about nine years old, had their limbs crushed by railroad cars, within a day of each other. Both were very shortly attacked with

tetanus, and died on the same day, after forty-eight hours' illness. Opium and assafetida had been freely used, in vain.

A coloured man and woman were attacked at different times, several months later. In these cases, the tetanic symptoms began two or three weeks after injury, and, perhaps, may have been excited by cold. Both recovered; one after a siege of three weeks, the other in half that time. The treatment consisted of purgation, at first with calomel—laudanum, in doses increased from fifteen up to ninety drops, every few hours, according to the condition, and stimulation with milk punch. The stimulation was considered by Dr. Norris an essential part of their management.

A white woman died 6th mo., 20th, apparently from thoracic and tracheal spasm. She had been unable to swallow for twelve hours, although her general convulsions were comparatively slight, and the rigidity was mostly confined to the throat.

Mania-à-Potu.—In the summer of 1847, twenty-six cases of delirium tremens were treated under the direction of Dr. Pepper, without any death. The only failure of complete recovery, was in a man very much broken-down by disease of the liver, &c., for which he was admitted, and who was removed by his friends. In one respect, this class of patients suffered under a disadvantage; they were, while ill, necessarily confined to their rooms, many of which, being in the basement, were too gloomy not to feed the dismal delusions and fears to which they were subject. There is no doubt that the most appropriate place for the management of such cases, would be a ward furnished with the space, attendance, and other conveniences and comforts of a well-regulated lunatic asylum; such, for instance, as the insane department of the Pennsylvania Hospital, Blockley.

In spite of these difficulties, however, the mortality in the wards in the city Institution is small. The usual treatment has been a combination of the moderate opiate, with the stimulant plan, varied according to the case. In mild or merely threatening instances, exercise such as was attainable, one or two bottles of porter daily, with full diet, and a Dover's powder or other soporific at night, proved sufficient. Where the nervous symptoms were well developed, but the pulse, warmth of skin, condition of stomach and muscular capacity evinced the absence of prostration, one grain of opium every two or three hours was given, perhaps with worm-wood tea, but without alcohol, unless the patient was known to have been habitually a large drinker. If the skin became cold and clammy, the pulse rapid and small, and long vigilance produced general exhaustion, brandy was directed, to the amount of a table-spoonful every hour or two, and one grain of opium was given every hour as a maximum. This course rarely failed to induce sound and prolonged sleep in from one to three or four days; and the sleep was almost invariably followed by immediate recovery. In several cases, a blister to the nucha shortened an

obstinate attack. Laxatives were required by a number. Intractable vomiting and rejection of food gave trouble frequently, but were subdued by the usual means. The most tedious case was that of a young lawyer, M———, whose symptoms, from the first, were less violent than the average; but who continued rather to lose than gain for three weeks, having the ordinary delusions constantly, with some tremor and increasing wakefulness. After having increased his anodyne to the amount of two grains of opium every two hours without effect, Dr. Pepper substituted the following: R. Tinct. valerian, ʒiij; Liq. morph. sulph. ʒss. M. S. q. h. quart.; and directed also an enema of a drachm of laudanum every night. His first long sleep, the precursor of cure, took place after a *warm bath*, the head being at the same time placed for some minutes under the cold stream of the hydrant.

In the course of the two years under observation, some fatal cases of mania-à-potu occurred, chiefly in the connection with violent injuries. But, whatever may be said of the success of the simple alcoholic plan in other institutions, or of the excessive narcotic treatment formerly in vogue, there appeared to be every reason to be satisfied with the combination of the use of moderate doses of opium with stimulation proportioned to the asthenia of the case.

The mode of termination of one fatal case was remarked particularly. Patrick Riley, cab driver, was admitted 6th mo., 11th, 1847. He was evidently delirious, but passive, and not noisy. He had been bled by a physician out of doors, on account of more violent symptoms. The pulse was, on his entrance, somewhat feeble, and the skin cool. We gave him at once an ounce of brandy—his usual beverage—and thirty drops of laudanum. The watchman was directed to give him twenty drops more in the night, with half an ounce of brandy, if he continued sleepless.

I was called early in the morning to see him, in a comatose condition; face livid; respirations at long intervals, and stertorous; skin warm; pulse rapid, and somewhat full. The physiognomy and breathing were exactly those of fatal narcotism from opium. Cold was freely applied to the head, and cathartic injections thrown into the bowels, while the feet were surrounded with sinapisms; but he died in the course of the day.

It was impossible that ordinary narcotism could have been produced to such an extent by fifty drops of laudanum, in two doses. The fidelity and care of the watchman could not be doubted. The disease itself must have imitated the action of opium. Dr. Pepper pronounced this opinion decidedly; and confirmed it by reference to a case mentioned in Watson's Practice, almost exactly similar in all respects—the man having been bled, and then having swallowed three grains of opium, died with all the symptoms of laudanum poisoning. Dr. Watson considered the universal experience of the tolerance of opium in mania-à-potu, to prove plainly that the disease had spontaneously assumed that mode of termination.

Tubercular Meningitis and Peritonitis.—I have noted but two cases in which tubercular disease of the membranes of the brain or abdomen was the prominent cause of disorder. Both were in adults; one colored. They were somewhat protracted, but fatal, and made the subjects of post-mortem examination.

ART. IX.—*Thoughts on Suits for Malpractice, suggested by certain Judicial Proceedings in Erie County, Pennsylvania.* By WILLIAM M. WOOD, M. D., U. S. Navy.

SINCE my duty has required my presence in this section of country, I have several times been summoned as a witness in trials for malpractice. The character, conduct, and results of those cases, go to show that in them, as too often in others, the principles of law, intended for the protection of the community, are perverted into powerful instruments of wrong and injustice.

The general influences, leading to these perversions of justice, can be readily understood and appreciated by all, and it may not be out of place to notice them, before detailing the special cases in which these influences have been manifested. It is well known, that all efforts to limit the exercise of the profession of medicine to those who have the abilities and acquirements essential to its proper understanding, have utterly failed; and ignorant and impudent pretenders, under a great variety of humbugging titles, come before the public with equal rights, and a better chance for popular favour, than the regular practitioner. The public, unfortunately, seems to consider all efforts to limit the practice of medicine to those of scientific attainments, as the attempt of a sect to monopolize rights, and to infringe upon the largest liberty. Under this latitudinarian license, we have Indian doctors, urine doctors, root doctors, water doctors, steam doctors, and homœopaths, preying upon the community; and each has his representative here. Some among them are too ignorant to know their own ignorance; and others, cunningly calculating how much the mystic and marvellous—the disposition to be humbugged—preponderate in human nature, over plain reason and common sense, appeal for a living to the greater ingredient, and shrewdly, if not honestly, make their bread out of the folly of their neighbours; only adapting their machinery to the refinement of the classes with which they deal. Charms and amulets do for some. The beautiful, refined, and fascinating vision of mystical phials and infinitessimal doses, touch the same chord in others. But how stands the regular practitioner affected by such circumstances? Why, it is this assemblage of varied dye, which represents the profession to the community; they are all of the healing art—doctors—as well as the M. D., and the interests and prejudices of the whole class are against the acts and

doings of the regular practitioner. Hence, ignorance and charlatanism become the rule, and intelligence the error. As will be seen, it may be very unsafe to cure a man on scientific principles. The anecdote of the old lady, who gave implicit belief to her sailor son's story of drawing up Pharaoh's chariot wheel on the fluke of their anchor,—but when he told of flying fish, charged him with lying, is an apt illustration of the faith and credence reposed in those who, studying nature's laws and truths, attempt to act by their direction. The course of the regular practitioner is all wrong; and, for unfortunate results, whether from the nature of the case, the neglect of his patients, or contingencies beyond his control, the regular practitioner is held responsible to a judicial tribunal, and he alone is held responsible. People have a right to die contrary to art, but *secundem artem*—never.

For some such unfortunate case, the regular practitioner is arraigned before a jury, the whole horde of "doctors" interested in driving him out, are summoned to give testimony. The jury is, of course, not accustomed to the mental discipline of investigating medical facts, and it may be, have the common prejudice against the regular practitioner. The most preposterous and absurd opinions are given to the jury in incomprehensible language, and with a pompous and dictatorial manner, but which makes an impression where the simplicity of truth would be unheeded. The very men who give this testimony are, perhaps, those who have instigated the suit. Add to the foregoing circumstances, the avarice of those disposed to escape their doctor's bill, and willing to take the chance of making money out of their injuries; the ingenuity of lawyers watching for cases, and determined to make fees; and it will be seen the regular practitioner pursues his profession under risk and hazards no prudent man would encounter. The consequence is, a fearful retribution is being visited upon the community in which such persecutions are sustained. Some of the most competent young men are driven off, and such as remain refuse to take the responsibility of surgical cases. Humanity is paralyzed in its efforts to relieve suffering, for I am told that services rendered in charity have terminated in a malpractice suit.

I was informed by an intelligent lawyer, that, before a jury, he would feel no confidence in the correctness of the practitioner's course saving him from damages. Another informed me that, when upon the bench, a suit was tried before him for malpractice, in the reduction of a dislocated shoulder. The ground was, that, at the moment of reduction, a "click" was heard, and, since then, the shoulder had been easily dislocated. It was proved against the doctor, by medical testimony, that, at the time of reduction, he had ruptured the *round ligament* of *the shoulder-joint*, and the jury rendered a verdict against him of five hundred dollars. The judge accidentally learned that there was no such ligament, and set aside the verdict. For such a deplorable state of affairs, deplorable for the profession, and more so for the community, the illiterate alone are not responsible. The singular support, which the influence of the pulpit too often gives to visionary and quacking schemes, has ever been

a subject of wonder and regret. It is this influence which enables quackery to appeal to the public in the garb of respectability, and to appear to the mass as having equal claims with science. We should suppose that the laborious students of divinity, aware of the assiduous discipline and mental training, necessary to give the power to study—the power to acquire and arrange facts, to trace their connections, to investigate speculations, and to comprehend principles—would be the last to suppose that the comprehensive and intricate principles of medical science could be intuitively acquired by ignorant men. I cannot forbear quoting the remarks, or part of them, upon this subject, from the "Discourse of Dr. Francis, before the New York Academy of Medicine." In allusion to the clergy he says: "They, with all their benevolence superadded to the weight of their sacerdotal office, sustain theories, and give credence to alleged facts, which are often at war with the best-established principles of medical science, and indirectly do harm to that calling which is like unto their own corporeal nature, demanding physical relief, as the immortal soul, the support of divine counsel."

"The Right Rev. Bishops of the Church of Great Britain, with their subordinates, who set forth, in solemn testimony, their convictions of the cures derived from Perkins' metallic tractors, humiliating as was the spectacle, impugned not the orthodoxy of their religious faith; but it would be difficult to exonerate them from blindness in observation, and fallacy in judgment, in medical affairs."

"I well remember," says Dr. Francis, "an interview I enjoyed with the late Rev. Dr. John M. Mason, the unrivalled preacher of this country in days past. He had repeatedly travelled abroad, and extensively visited Great Britain. He was asked why he did not give to the public the results of his observation. 'Alas!' he replied, 'What sort of travels can I write? I neither understand the nature of the air I breathe, nor the water I drink, nor the earth I tread upon. My life has been appropriated to polemical divinity.' The frankness of this answer was characteristic of this honest and great man, who long bore the name of the American Paul."

The eyes of the clergy should be opened by one fact, if they are closed to reflection, and it is: That those of their body who study medicine scientifically, are never the advocates of quackery.

The bearing of the foregoing widely extended and powerful influences, will be illustrated by the following facts:—

Within a recent period, a young German physician and surgeon, Dr. B., located himself in this place, and he was one whose talents and acquirements should have secured him welcome and encouragement. With gentlemanly manners and deportment, he had a superior general education. As a pupil of Dieffenbach, he had enjoyed and profited by great professional advantages.

This gentleman informed me, that, from an early period of his residence, he had been persecuted by suits or threatenings of suits, let the results of his surgical practice be what it might; the people being, as he alleged, instigated to these suits by the irregular practitioners, who regarded his advent with a

doings of the regular practitioner. Hence, ignorance and charlatanism become the rule, and intelligence the error. As will be seen, it may be very unsafe to cure a man on scientific principles. The anecdote of the old lady, who gave implicit belief to her sailor son's story of drawing up Pharaoh's chariot wheel on the fluke of their anchor,—but when he told of flying fish, charged him with lying, is an apt illustration of the faith and credence reposed in those who, studying nature's laws and truths, attempt to act by their direction. The course of the regular practitioner is all wrong; and, for unfortunate results, whether from the nature of the case, the neglect of his patients, or contingencies beyond his control, the regular practitioner is held responsible to a judicial tribunal, and he alone is held responsible. People have a right to die contrary to art, but *secundem artem*—never.

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jealous eye, and who were called to the witness-stand as professional witnesses when the case came on. Prosecution was threatened, not only in cases of recovery with real or imaginary defect, but when his dislocations were reduced, and his fractures united, he was threatened with proceedings for having treated cases in which there had been no injury.

I was first summoned, on his part, to give evidence in the following case :—

During the prevalence of small-pox, two girls, who had been exposed to the contagion, applied to him to be vaccinated. Before the vaccine influence could manifest itself, one of the girls was taken with variola, and which proved to be a very bad case of confluent disease, leaving the girl dreadfully scarred. The arm of the other girl became very much inflamed. The charges against the doctor were, that he had communicated the small-pox in one case, and some unknown animal poison in the other. Medical men, as they called themselves, whoever they were, who advised this prosecution, ought to have known that extensive inflammation sometimes follows the insertion of the vaccine virus, and to have considered that, in the other case, the variolous disease had been communicated before the girl was vaccinated. The violence of the disease alone would contradict the idea of its being inoculated. But, on account of these cases, Dr. B. underwent a great deal of guerrilla persecution, professional and lay, besides being compelled to enter into expenses, and to take measures to protect himself before the court. The case was first brought before arbitrators, but was withdrawn from them to be carried into court. Dr. B., wearied of vexation, having made arrangements for his defence in his absence, left his suits, his property, and his family, to seek a more generous home and better rewards, in the golden valleys of California. Soon after the withdrawal of the foregoing case from the arbitration, I was summoned before a magistrate, to give evidence in another suit against Dr. B., or rather payment of the doctor's bill was resisted, upon the defence of malpractice.

A farmer in good health, and the prime of life, had his left leg fractured by the fall of a heavy piece of timber. The fracture was about the middle of the leg, and compound, both bones being driven through the soft parts, forming the calf. There was of course much extravasation. The doctor thought there might be a chance of saving the leg. He placed the bones in apposition, and retained them there by means of straw splints, made by neatly rolling a volume of straw in each end of a piece of canvass, and bedding the contused and fractured limb between them. The foot was prevented from falling over by a foot-piece made fast to the foot of the bed. Cold water dressings were at first applied, and afterwards a vinous wash. In the course of a few days, coagula clogging the orifices in the soft parts, and there being much stuffing of the limb from effused blood, Dr. B. made one or two incisions, to free it. Gangrene came on, and the limb was amputated by the double flap operation, through the lower third of the thigh.

Respecting the time occupied in the operation, there was a difference of

opinion, the longest asserted being forty-three minutes up to the conclusion of the dressing, and part of this was lost by the operator having scalded his hands. About two days after the operation, the man died.

Taking into consideration the great mortality attending thigh amputations, I was at some loss to conjecture the grounds for alleging malpractice, and presumed it would be charged from the delay of the amputation. This was made a point, but barely touched upon. Malpractice was attempted to be shown from all the following points:—

1. The operation not being primary.
2. The time occupied.
3. *Not bandaging and enclosing the limb in firm splints from the beginning.*
4. The application of cold water.
5. Fastening the foot to the foot-board.
6. Making incisions.

The third, fourth, fifth, and sixth points were those most urged, and a Thompsonian or Botanic physician, and a Homœopathic, gave evidence adverse to the doctor on all these points. The scientific and unprejudiced character of the testimony may be judged, but the Thompsonian was complimented by one of the lawyers upon the excellency of his testimony.

The incisions, and the failure of the doctor to bandage this crushed and contused limb, were insisted upon as very great faults. The regular physicians sustained on the witness-stand the course pursued by Dr. B., and the justice rendered a verdict in his favour. What would have been the result before a jury, is by no means certain. But the exile of Dr. B. has, I believe, been the means of preventing this case from coming into the court.

Dr. B. having got out of the country, I began to hope that my services as a medical witness were, at least for the present, at an end; but at the very next term, that of the present month, I was summoned to give evidence in the following case. A woman, by a fall through a bridge, received an injury of the right arm. A country practitioner was called, and pronounced the injury a fracture, and treated it with a patent splint, for fractured radius. After six days' attendance, this gentleman was told he need not come again unless sent for, and from that time the family treated the arm without any professional advice. It is now a year since the accident, and the fractured radius is well united, but there is a dislocation of the carpal extremity of the ulna. In this case, the jury found against the doctor for four hundred and fifty dollars, which, added to the costs and loss of reputation, is, to a poor country practitioner, an overwhelming verdict.

It was not in proof that the Dr. discovered the dislocation at the time he reduced the bone, neither was it in proof that he did not, further than that he made no mention of it.

There are some important questions suggested by this case, and of interest to the profession and to the community. Admitting that the dislocation was not discovered by the doctor during his attendance, ought he to be held responsible for the final result, when he was dismissed after six days' attendance?

Had he been continued, it would have afforded him the opportunity of discovering the injury in time for its reduction, though it may be doubted whether, under any circumstances, the recovery would have been better than it has been. But again, how far ought the common practitioners through the country to be held amenable to a standard of professional excellence, which neither the ability nor the inclination of the people will justify by pecuniary compensation, and which excellence is, moreover, difficult of attainment, unless by a greater amount of surgical practice than the country affords? These certainly are important considerations for the profession, and for the people.

The existing state of affairs, it appears to me, is worth the consideration of those who are interested in the question of medical education now agitating the profession. Some few years ago, I heard a professor, in one of our principal medical institutions, defend, in his introductory lecture, the facility with which diplomas are granted by our colleges, upon the ground that it is better to provide the people with imperfectly educated physicians, than with those not educated at all. But here we see the people repudiate such doctrine; they not only claim to have, in all the highways and by-ways, the most skilful and accomplished men, but those who must make no mistakes and be liable to no accidents. It is better to be without a diploma; for then, besides having the sympathies of the community, the practitioner can say, "I make no pretensions, I offer no certificate of ability, and only gave my neighbour in his sufferings such aid as I could."

One of the most able and experienced practitioners here, now refuses to take the responsibility of surgical cases, and feels constrained to turn the applicants away to find help where they can. Being urged to take charge of a dislocated elbow, which, for want of aid, went a week unreduced, he would consent to do so, only upon being released from all responsibility. During the progress of the cases narrated above, a pregnant lady, it is currently reported, expelled her fœtus, and she herself died under the action of repeated lobelia emetics, exhibited by a botanic physician; but no proceedings, I believe, were instituted in this case.

It would certainly be a source of congratulation, if those who tamper with the health and lives of the people, whether by criminal ignorance or wilful neglect of their duties, could be held to a healthful accountability; but it is too much to require the regular practitioner only to be responsible; and to be not only responsible for the unfortunate contingencies of his profession, but subject to the avarice of the community, the influence and opinions of charlatans, the acute management of the bar, and the ignorance of juries. Such is the case at present, and the only remedy that I see lies with the bench. Let judges make themselves acquainted with what should be the qualifications required of medical men, according to the *standard justified by their location*, and charge juries definitely and clearly upon that point. There may be other modes of setting things right for the advantage of all parties, and I shall be most happy to see them suggested.

Erie, Pa., May 24, 1849.

ART. X.—*Case of Imperforate Vagina, and Malformation of Superior Portion—Operation—Cure.* By A. B. SHIPMAN, M. D., Prof. Surgery Indiana Med. College.

JANE H., aged 18 years, of small size, yet bearing all the external signs of puberty, had complained for nearly one year of pain in the hypogastrium, which was aggravated once in about four weeks, when she would be compelled to take to her bed a few days each month. A gradually increasing enlargment of the abdomen, and an incontinence of urine, with various other symptoms—such as irritable stomach, &c.—made her suspected of being pregnant. She was an inmate of the Cortland County Almshouse, from a child, and her intellect was not of the highest order—making it difficult to obtain a clear account of her previous history. At one time she would persist in the statement that her catamenia had come on, but, on questioning her closely, she denied ever having been unwell.

The physician of the almshouse (Dr. Carpenter) had never made an examination of her, per vaginam, until the superintendents requested me to visit her.

May 20th, 1849. Met Dr. Carpenter, in consultation. Found her in great pain; had been so for the last two weeks. Complained mostly of the abdomen, which was much enlarged, and a distinct globular tumour in the region of uterus. This was hard and tender. She had also pain in the back, hips, and limbs, with incontinence of urine. I learned that the pains at first were expulsive and paroxysmal, but latterly had been constant and unremitting. On examination per vaginam, found an orifice that would barely admit the point of the forefinger to the depth of one quarter of an inch, and terminating in a closed *cul-de-sac*. Examination with a probe failed to detect the least opening through this, nor could the uterine tumour be detected by this examination. A finger introduced into the rectum discovered the uterus, distended, and pressing on the rectum. A catheter in the urethra, and finger in the rectum, revealed the almost complete obliteration of the vagina, above the termination of the cul-de-sac—for the finger in the rectum came in contact with the catheter, there being apparently only a thin intervening membrane existing between the urethra and rectum, above the termination of the vagina. There seemed a space of nearly two inches of this absence of vagina, and the fluid appeared confined in the womb, as it made no pressure on the closed vagina, as in cases of imperforate hymen.

It was apparent that an operation must be performed, and that some little difficulty might be experienced in avoiding wounding the urethra, bladder, or rectum. Having administered the chloroform, to keep the patient quiet—she being of a refractory disposition—a catheter was introduced and given in charge to Dr. Homer D. Jewett, of Summer Hill. I introduced my left fore-finger into the rectum, to guide my incision; then, with a sharp, round-edged bistoury, I carefully carried the incision upwards, to the depth of nearly two inches. Then, with a large-sized trocar, I perforated the uterus, and withdrew it, leaving the canula. A stream of menstrual fluid, of the colour and consistence of treacle, flowed out with much force, until it was judged three pints had been discharged; it continued to flow for two days, when it stopped. The chloroform produced the most perfect insensibility while the operation continued. The incision was so narrow, that the finger could not be introduced, and I feare to make it more extensive, from the contiguity of the bladder and rectum.

am satisfied the vagina was obliterated from the bottom of the orifice to the uterus, and that, if any os uteri existed at all (which I greatly doubt), it was hermetically sealed. No unpleasant symptoms followed the operation, but, on the contrary, she got well at once, being able to go to work in two or three days.

Dr. Carpenter, whose care she was left in, failed to keep a tent in the opening, either through the patient's wilfulness, or some other cause, and two weeks from the operation she was taken in pain, and I was called. On examination, I found the orifice nearly closed; yet a small-sized catheter opened it, and gave exit to half a pint or more of catamenial fluid. Four weeks after this, she was again taken in pain, but the catamenia began to flow spontaneously at the end of a week. Since this time no difficulty has occurred, and the case may be considered as perfectly successful.

This is the second case which has fallen under my observation, where an operation was required to give exit to the catamenial fluid. The first one occurred in 1834, and was published in the *United States Medical and Surgical Journal*, for September, 1834. The young lady in this case was fifteen only, but of large size, and had been menstruating six months. The obstruction was produced by a dense membrane, a quarter of an inch in thickness, situated in the orifice of the vagina, where the hymen is found, and the fluid was collected in the vagina, distending it to a large size; yet, by making a crucial incision, and the use of large wax bougies, an opening was kept of sufficient size to admit the finger.

Four years after the report of the case, the patient married, and became pregnant. When labour came on, it was lingering, in consequence of the narrow band around the vagina. She lived thirty miles from my residence, and, after being in labour forty-eight hours, I was sent for; but she was delivered before my arrival of a dead child. Since then she has borne several children, without difficulty.

A case occurred to me, some five years ago, of a lady who had been married six years without being pregnant. She had always suffered greatly from pain at the menstrual periods, and I had prescribed the usual remedies for dysmenorrhœa, but with no success. Being anxious for issue, the husband strongly solicited me to do something to place her in a condition to bear children.

I proposed an examination, after hearing the painful character of sexual intercourse, and, to my astonishment, I found an almost complete closure of the vagina, an inch above its orifice. An examination with a probe, detected a minute orifice, where the menstrual fluid must have found its way out, yet so small as to make it difficult for coagula to pass, or even small shreds of mucus: hence the dysmenorrhœa. The obstruction was caused by a band of membranous substance, half an inch thick, very firm and dense. Sexual connection had never been satisfactorily performed; but modesty and bashfulness had prevented either of the parties from seeking relief—the husband, probably, supposing that his wife was not materially different from other women in her anatomical formation, and the lady, too modest to complain, or too ignorant

of her condition to know of any remedy, went on from year to year, yet very anxious for offspring.

I proposed an operation to remedy this defect, which was cheerfully consented to by the patient. A probe-pointed bistoury was introduced, after exposing the patient, as in the operation for lithotomy, and an incision, of a crucial form, was made, to some extent, so that a finger could readily be introduced. A tent was next inserted, and left there, after using a T bandage to support it in its position. A large-sized spermaceti candle was directed to be passed daily for three or four weeks. The first time the catamenia appeared, after the operation, it was easy and free from pain, showing that the obstruction, as we had supposed, was the cause of the dysmenorrhœa.

But the most happy result of the operation was pregnancy, which followed speedily her recovery, and in due time she was delivered of a healthy child. Since that time she has borne several children, and her health has been perfectly good—a striking contrast from what it was previous to the operation.

The pain attending sexual intercourse in married ladies, is often a source of ill health, and, in some instances, I am confident, is the cause of sterility. It is often caused by some obstruction at the orifice of the vagina, or inflammation and thickening of the tissues about the nymphæ, or orifice of vagina.

A lady consulted me, some years ago, for pain and ill health, consequent upon painful sexual congress. She had been married seven years, to a widdower, who was nearly fifteen years her senior, and, as his prior marriage was without issue, felt great anxiety to prove his virility in some way. I found the lady with a finely developed body and genital organs, catamenia regular, and free from pain. She was troubled with leucorrhœa to some extent, especially after sexual connection.

On examination, I found a small, painful tumour just within the orifice of the vagina, of the size of a filbert, exquisitely tender, and of a vivid red colour. It was attached to the vagina by a base of half an inch in diameter, yet it could be raised from its attachments by the fingers. She informed me that, before marriage, she was conscious of an abnormal state of the parts, from the tenderness and tumour she had discovered with her finger. And the consciousness of this made her long hesitate about entering into her present matrimonial engagement. Sexual congress at first gave her severe pain, yet, after a time, became tolerable to bear; but, fearing it might have some agency in the absence of pregnancy, was induced to consult me. I advised an operation for the removal of the tumour, which was easily done with a pair of tumour forceps and bistoury.

After she had recovered from the operation, which was in two weeks, pregnancy immediately followed, and she was delivered of a fine, healthy child, to the great joy of the father, and not without the same feelings on the part of the mother. It is unnecessary to mention that she was never more troubled with pain by sexual congress.

ART. XI. *On the Influence of Sea Life upon Health.* By RICHARD MCSHERRY, M. D. Passed Assistant Surgeon, U. S. Navy. [Communicated by THOMAS HARRIS, M. D., Chief Bureau of Medicine and Surgery, U. S. Navy.]

As the subject of the influence of sea life on health is one of much interest, I beg leave to offer to your readers the following statement of the most prominent diseases, out of something over a thousand cases, admitted into this hospital during the years 1845, 6, 7, and 8, with some few remarks based upon personal observation.

I find on the register, 132 cases of pulmonary disease; of which 43 were entered *pneumonia*, 41 *bronchitis*, 25 catarrh, simple or complicated; 18 *phthisis*, and 5 *hæmoptysis*; 107 of dysentery and diarrhœa; 215 of fevers of various grades, types, and forms, from the malignant yellow fever of the West Indies, and the shores of the *tierras calientes* of Mexico, to the mildest intermittents of temperate and healthful regions. 130 of those maladies resulting, directly and indirectly, from impure intercourse with females; 82 of rheumatism, chronic, in nine cases out of ten; 26 of various organic diseases of the heart, and 12 of insanity. Of the remaining cases, upwards of 80 were injuries; including fractures, dislocations, &c.; and the three hundred and more not enumerated, embraced nearly all the ills that flesh is heir to. Thus we find the drunkard's mania, dyspepsia, hepatitis, the prostration mental and physical, that follows certain violent fevers, as those of the coast of Africa, various local inflammations and disorders, skin diseases, &c. The old curse of seamen, the scurvy, is almost unknown on our records, thanks to the lights of the age; two cases, brought most probably from the Gulf of Mexico (for there were some instances of it, during the blockade of that coast), appear on the books, standing as mementos of a once formidable enemy, long since overthrown, and now, well-nigh forgotten. Another tribute to scientific progress is found in the fact, that not one case of small-pox is recorded, though there are several of varioloid.

It will be observed that *phthisis* bears a very small proportion to the cases enumerated; for supposing, as is probable, that some of those entered as *bronchitis*, or more particularly *hæmoptysis*, resulted in the genuine tubercular disease, still the relative proportion to the whole little exceeds two per cent., a small ratio compared with the statistics on shore. Sailors have no exemption from consumption; and their manner of life is, to a certain extent, favourable to the development of acute diseases of the chest; thus they sleep crowded together by hundreds on the berth-deck, which is reeking with hot vapour from their breaths and persons, when, at the change of the watch, they leave their heated atmosphere, and find themselves suddenly cooled by the open air on the spar-deck, or perhaps by the keen breeze they may have to encounter in the aerial regions of the royal yards. *Per contra*, they spend

their lives in the comparatively uniform temperature of sea air; they enjoy, in the navy at least, wholesome food and good clothing; besides which, their flights aloft, exercising equally the upper and lower extremities, expand the chest freely, open the air-tubes through all their ramifications, disperse the stagnation of blood in the capillaries, that oppresses the sedentary with a sense of weight and weariness long before tubercles are developed, and free the mucous membrane of the attempts of the last to form lodgments there. Officers are more subject to phthisis, comparatively, than men; they too sleep (with the exception of the commandant) in apartments rather crowded and badly ventilated, while their counteracting exercise is very moderate, and rather passive. Landsmen going to sea for their health, when there is a predisposition to the dread *opprobrium*, find the motion of the ship, the pure sea air, and hateful sea-sickness itself, renovating; but, if they be passengers or *idlers*, the cruize should be short; otherwise, long imprisonment is apt to bring on indigestion, nervousness, sleepless nights, and other important offsets to the earlier advantages.

Of the cases entered as dysentery and diarrhœa, it would probably be not amiss to suppose them all of the former, taking the terms in their proper signification; that is, considering diarrhœa a mere flux, a flowing through, and dysentery, as the word indicates, a grave and painful disorder of the intestinal canal, in which nature is making constant, but ineffectual efforts to relieve herself of a source of persistent irritation. Of diarrhœa, then, we have few cases, but many of dysentery. Scarcely a cruizer returns from the tropics, particularly from the East or West Indies, without bringing back a great or small proportion of these cases. In the East Indies, I have known nearly one half of a frigate's crew (of the U. S. ship Constitution) suffering at one time with the disease to a greater or less extent, though never more, I think, than one man out of every four or five was actually rendered unfit for duty. In that climate, it is our most formidable enemy; the more so, of course, as our robust and ablebodied seamen are not willing to come down to the sparse and simple diet of the native inhabitants. When Jack reports himself to the surgeon, and is put on rice, and bread and tea, and has his grog stopped, if he can manage to get a pound of pork, buried in beans, from his messmates, who look upon him as an injured and persecuted man, he forgets the harm he does himself in the triumph of "weathering the doctor." Gross diet, crude fruits, and frequently bad water, in addition to the effects of climate, convert a naturally intractable but not generally dangerous disease, into, too often, a fatal one. Dr. McLeod, the accomplished surgeon of the Constitution, showed me a communication he received from a French naval surgeon, on the East India station, in which it was stated that, in the French squadron, great benefit had resulted from allowing none but distilled water to be drunk; or, in case it was not to be had, that the water should be kept on board-ship, before used, at least two months, to give it time for self-purification. This harassing disease is commonly preceded or introduced by constipation; it ap-

pears, that with a general prostration of the muscular system, that portion of the intestinal tube loses tone, and is unequal to the task of propelling the contents as it does in ordinary health; then the bowels become torpid, constipated; the contents of the inferior portion become hard and indurated, and at length irritating. Nature then tries to throw off the burdensome scybalæ. Glairy mucus, and bloody serum come away with pain and straining, in place of natural alvine dejections. I do not propose, in this paper, to dwell on the treatment of disease, but may remark *en passant*, that I have seen the most soothing effects from free doses of mercurials (calomel, in twenty-grain doses), from general or local bloodletting, according to circumstances, and from hot fomentations, &c., over the seat of pain; while, on the other hand, I may say that in most cases bloodletting was not called for, and that I treated some cases experimentally, without mercury, without any other apparent difference than that their progress towards recovery was somewhat slower. Of astringents, when called for, I know of no single one more reliable than the unpretending alum. et potass. sulphas.

Of the fevers, and various other maladies enumerated at the beginning of this paper, I have at present nothing to say. With some of them I have no familiarity, and others are common to all conditions and all climates, and therefore have no particular bearing on the subject in question. I will therefore conclude, at once, with a short notice of a subject of naval *hygiene*. It is scarcely necessary to premise that dampness on ship-board, through all the apartments, is perennial, and that cleanliness holds a rank in naval virtues second only to courage. Now it is a constant bone of contention, whether frequent washing of the lower decks is, or is not, advisable; some commanders and executive officers will keep the ship always flooded with water, only to be suspended while the drying-stoves are exhaling their irrespirable if not mephitic gases. While others, abhorring water, confine their cleaning to the dry scouring of the holy stone. There are yet others, who, in my opinion, have hit that *juste milieu*, that is of more value than the philosopher's stone; they neither forswear sand nor water, but when the weather is bright, warm, and clear, and evaporation prompt, they resort to the deluge. Under other circumstances, when cold, raw weather prevails, or there is rain, they content themselves, and promote the health and comfort of the crew, by dry cleaning.

That great model of a naval commander, Lord Collingwood, gave great attention to the means of preserving health among his men, and he was rewarded with the most remarkable success. I will cite, in conclusion, a few instances. H. M. ship *Venerable*, eighteen weeks at sea, very rotten. On sick list *none*. October, 1803. H. M. ship *Ocean*, off Toulon, May 15th, 1808. "Long time at sea, never getting fresh beef, nor a vegetable; not one man sick." Memoirs, p. 265. "His flag-ship had usually 800 men; on one occasion was more than a year and a half without going into port; during that time, never had more than six, and generally but four on the sick-list.

This result was occasioned by attention to dryness (for he rarely permitted washing between decks), frequent ventilation of hammocks and clothes, circulation below of fresh air, &c. &c.," *Memoirs*, p. 266.

It must be remembered, however, that Lord Collingwood was cruizing in a temperate, healthy region, and not upon Indian, Mexican, or African seas; still, the citations above must be admitted to be most remarkable, and highly worthy of attention. If equal success cannot be obtained by the same means, we might at least hope for a desirable approximation.

ART. XII.—*Case of Congenital Deficiency of the Superior Portion of the Cranium.* By JOHN W. H. TRUGIEN, M. D., of Portsmouth, Va.

H———, aged forty-six, native of Ireland, County of Mayo, married, and the mother of twelve children, all of whom were well formed and perfect, after a gestation of nine months, during which nothing unusual occurred, was seized with labour-pains, at 1 o'clock P. M., June 5th, 1849, and at 4½ o'clock P. M., was delivered of a fine (with the exception of the particular deformity, of which mention is about to be made) female child. As is customary, in our southern country generally, a woman was called upon to preside at the birth of the child; and, consequently, nothing could be ascertained very satisfactory of the phenomena of labour—the relative duration of the different stages, &c. On examining, with the view of detecting the presentation, the strange feeling communicated to the finger of the midwife by the fœtal head, surprising and alarming her, caused her to send for a physician. The second stage of labour was fully commenced when he arrived; the os uteri fully dilated, the head presenting (position not stated), and the arm protruding by the side of the face. The bag of waters was now ruptured by the finger of the accoucheur, and the arm pushed back into uterus, when the head descended regularly, and the child was delivered in due time. It was then found, on examination, that the calvaria or vault of the cranium was entirely deficient, presenting the appearance of having been cleanly sliced off with a knife, on a level with the temporal ridge all around, commencing in front at the superciliary ridges of the frontal bone, extending thence through the parietal and occipital behind, down to the level of the superior semi-circular ridge. The space thus left deficient, was covered by a transparent membrane, through which the brain could be distinctly seen, of a bright scarlet colour. It was deeply interesting to witness the movements of the brain, which were synchronous with those of the respiratory apparatus; the cranial mass rising during expiration, and sinking during inspiration. The parts of the brain exposed to view, were the anterior, middle, and posterior lobes. The spinal

column was perfect throughout, and, as before intimated, with the exception of this deformity, the child was perfect in all its parts. Pulse about 130 in the minute. Aspect of the face very singular and expressive, resembling more that of an old woman than a new-born babe. The eyes looked unusually large; the pupils dilated, and the eyelids constantly closed. The child cries, but does not nurse, refusing the nipple when applied to the mouth. Owing to the ignorance of the parents and friends, and their superstitious notions, such an examination as we could have wished, was not to be had. Some measurements of the body and head were, however, made, and are as follows :—

	Inches.
Length of child, from vertex to heel	15½
Circumference of head	8½
Fronto-mental diameter	3½
Length of opening in the cranium	3
Breadth	2

The child lived forty-eight hours only after birth. No post-mortem examination was allowed.

ART. XIII.—*Case of Monstrosity. Deficiency of posterior parts of Cranium and Spinal Column—Deformity of Genital Organs, &c.* By J. E. BREED, M. D., of Smithville, Jefferson County, New York. (With three wood cuts.)

THE enclosed sketches were taken from a monster, the product of a third pregnancy; and thinking the case a novel one, I send it to you for publication. At the full time, preparatory pains commenced at 2 P. M., and at 11 P. M. the waters were discharged, without much apparent hastening or advance of the child. Upon examination, no child could be felt; but, instead, a firm bag containing fluid, and which for a time was thought to be the natural bag covering the child. The next pain, after the examination, was followed by a gush of fluid, which deluged the couch, and ran down along the floor. The child advanced immediately, and labour ended at a quarter past 11 P. M. I had made a minute examination of the organs of generation, of the sac, brain, and spinal cord, when I was obliged to leave, and therefore hastily examined the viscera of the abdomen and chest; this will account for any want of minuteness in the sketch or description. The posterior part of the cranium and spinal column was hid by a loose sac, formed by the membranes covering the brain and cord, and the external integuments. The sac had an extensive laceration on the left side, nearly on the level of the ear, as shown in the

accompanying figure (Fig. 1), and through this rent the fluid had found exit. The brain was shrunken and compressed, and the spinal cord was wasted, and in

Fig. 1.

L, lung. L', liver. H, heart. S, stomach. S—C, spinal canal.

places in loose bundles, having, no doubt, floated in the fluid of the sac. The posterior walls of the brain and spinal canal were absent. The anterior wall of the canal and the lateral bones of the cranium, were deficient in some degree of bone, and were covered by a calcareous deposit, as was also the internal face, of the sac. Upon examining the organs of generation, there was found to be a proper left labium, while the right seemed rather like a half scrotum, and was found to contain a perfect testicle, with a duct communicating with the urethra near the bladder. I say communicating, but I could pass my probe only about two-thirds of the way from the testicle towards the urethra, on account of its size. Instead of the proper lining of the right labium (or scroto-labium) on its internal face, there was a very delicate and thin membrane, covered by a net-work of blood-vessels. The vagina was distinct, though distorted, and within was a uterus with all its appendages in situ, and of the usual size, with the deviation that the right ovarium and Fallopian tube were rudimentary, yet

distinct. The neck of the uterus was also elongated somewhat. There was no penis, and the urethra was like a hard cord, with the meatus opening high upon the pubis, as shown in the accompanying figure. (Fig. 2.)

Fig. 2.

The abdominal and thoracic viscera were compressed and pushed forwards as exhibited in the figure. I did not notice any other deviation in them. The spinal canal was very much distorted (see Fig. 1), and many adhesions were present, and bands of fibres passing from the anterior to the posterior lining of the abdomen. The upper limbs were very small and deformed, being without fingers and thumbs, the right without any elbow joint, or at least nearly immovable and bent (see Fig. 3). The lower extremities were of full size, and of good shape. The bones of the face and the ribs, sternum, &c., appeared to be as well developed as is natural. The anus was in its usual place, and communicated freely with the bowels. The placenta was rather small, otherwise natural.

Fig. 3.

Midway on the cord was a cartilaginous knob or tumour, with a trace of the same deposit noticed on the sac. The mother states that she did not observe anything amiss or different from usual in this pregnancy, unless that, when there was unusual motion, sharp, stitch-like pains were felt in the small of the back and on the pubis. She had a rapid recovery, and remains healthy.

In the sketch, I have endeavoured to show the distorted appearance of the spinal canal, and the absence of the posterior wall. The parts were so mutilated by the dissection that they were not preserved.

REVIEWS.

ART. XIV.—*Experimental and Practical Researches on the Structure and Function of Blood Corpuscles; on Inflammation, and on the Origin and Nature of Tubercles in the Lungs.* By WILLIAM ADDISON, F.L.S. (Transactions of Provincial Medical and Surgical Association, Vol. XI. p. 233.) London, 1843.

The Actual Process of Nutrition in the Living Structure demonstrated by the Microscope; and the Renewal of the Tissues and the Secretions from the Blood thereby illustrated. By WILLIAM ADDISON, F. L. S. (Transactions of the Provincial Medical and Surgical Association, Vol. XII. p. 235.) 1844.

On Healthy and Diseased Structure, and the True Principles of Treatment for the Cure of Disease, especially Consumption and Scrofula; founded on Microscopical Analysis. By WILLIAM ADDISON, M. D., F. R. S., Licentiate of the Royal College of Physicians. 8vo. pp. 320. London: Churchill, 1849.

THE employment of the microscope in the study of general anatomy and physiology, has not only subverted previous classifications, by enlarging our acquaintance with these branches of medicine, but has greatly modified our knowledge of various pathological processes. This result has been accomplished in two ways, viz.: by direct observation, and by inference. All that is positively known to be true, has been acquired by the former means; much that is merely plausible or really false, by the latter. Microscopy is eminently a science of observation; the information it affords does not differ in kind from that we receive through the eye alone, and its province is not to take the place of, but to assist the sight. Now, with the eye, the size, form, colour, and grouping of bodies are recognized; and, if anything more be known, it is by means of comparison with previously ascertained facts of the same sort, or with the subjects of the other senses. The best lens cannot reveal to us more of the constitution of matter than the above-enumerated qualities, as they are seen in its minute particles; their origin, transformations, and destination, are not objects of sight. If an additional reason were necessary, why we cannot study the changes taking place in microscopic elements, it would be apparent from the reflection, that nearly all microscopic observations are made upon matter withdrawn from the sphere of vital influences, and, even where it is possible to inspect parts still preserving their connection with the living animal, the magnifying power used is necessarily so low as to preclude the minute investigation which is obviously required. It is true that, by the employment of chemical substances, or of water alone, certain changes will take place in the elementary composition of the fluids submitted to inspection, and the phenomena so produced may simulate the natural transformations; but there can be no doubt that a spontaneous vital metamorphosis or growth of a cell-organism has not yet been really seen.

We may examine the constituent cells and granules of pus, or tubercle, or cancer, and it is possible that, at some future period, a unanimity of opinion may prevail among microscopists, as to their characteristic elements; the presence of abnormal particles in the urine, the saliva, mucus, and other secretions, may be detected; but the spontaneous changes of a single pus, cancer, or tubercle cell, or the development of a solitary crystal in the organic fluids has not yet been observed by any microscopist. This fact, we would repeat, is not due to the imperfection of our instruments, but to the imperfection of all observation. It appears to us of the greatest importance that the real province of the microscope should be kept constantly in mind, and that we should be able to determine where observation ends and inference begins. For it is owing to the want of this discrimination, that some of the greatest errors have been introduced into microscopic anatomy. The number of microscopic observers is, comparatively speaking, so small, that we are deprived of those safeguards against the propagation of error, which, in other branches of medical investigation, are provided by the simultaneous labour of numerous individuals. And since, also, it is much easier to propagate errors than to eradicate them, the evil tendencies of the neglect of this precaution, remain for a long time unchecked. Hence it is that the microscope has fallen into discredit with many; hence the conflicting opinions, the contradictory statements, the irreconcilable theories which obscure the truth in this department of science. If we had now a record of all that microscopists have really seen, separated from their conjectures and assumptions, we should possess therein a fund of positive knowledge of inestimable value, in the further prosecution of similar researches, but, in its present condition, the microscopic history of morbid products is a perplexing labyrinth.

Henle has remarked, that it is not correct to attribute the errors of microscopists to the optical illusions which sometimes may mislead them; but that the fault more frequently lies in the incorrect interpretation of that which is correctly seen. If, for instance, fibres be seen upon the field of the microscope, and they are assumed to be of a muscular character; or, if the molecular movements in liquids be taken as evidence of the inherent vitality of the particles under examination, the error does not arise from the object not having been seen aright, but from its being wrongly explained. The judgment is in fault, although the eye has not been deceived. It is not our purpose to illustrate the remarks above made by a reference to the present condition of microscopic anatomy and physiology, but, as they have been suggested to us by the treatises which stand at the head of this article, it is in them that we propose to look for examples of the fatal effects which ensue from the forgetfulness of true principles. Müller (*Physiology*, Am. ed. p. 469) has very correctly said, "The process of nutrition is not an object of microscopic observation." Dr. Addison, on the other hand, proposes to demonstrate a "microscopical theory of nutrition," and he anticipates "that the science of medicine is to be hereby established upon a surer and more philosophical foundation, in consequence of which, we shall be enabled to extend our remedies, and suggest new physiological methods of treatment for the maladies of mankind." The anatomical lesions of consumption and scrofula, as well as incidentally of other diseases, it is the object of this theory to explain; together with the causes, symptoms, and treatment of the above-mentioned maladies. It will appear further, what success this endeavour has met with; but we must first follow Dr. Addison, in the observations upon which his theory purports to rest.

In this system of nutrition, the principal part is played by the lymph, or

colourless corpuscles of the blood; indeed, these bodies seem to have attracted Dr. Addison's attention, to the exclusion of its remaining constituents. They are not only concerned in the nutritive process, but are the sole agents by whose instrumentality it is conducted, and as inflammation is regarded by our author as merely an exaggerated nutrition, the metamorphoses which they undergo, determine its character and duration. Dr. Addison's object is, to demonstrate the proposition, "that all the textures of the body arise from the metamorphosis of cell-organisms in the embryo; that they are nourished by the metamorphosis of cell-organisms in the blood; and are displaced, interrupted, or go back again to cell-organisms, in scrofulous disease, phthisis, and ulceration." The doctrine of the formation of the tissues directly by the blood-globules was first proposed by Doellinger, but received assent only from a very few of his cotemporaries and followers. No one has, since his time, been able to confirm his observations, and we are hence warranted in the supposition, that his error was due, either to the imperfection of his microscope, or to that desire to introduce a new and startling theory, which has always been productive of so much mischief in retarding the real progress of medical knowledge. In our own time, however, it may be said that Dr. Martin Barry has advanced essentially the same doctrine. (*Philos. Trans.*, 1841, 2, 3.) He states that the blood-globules of mammalia not only have *nuclei* (which we may be allowed to remark is in direct contradiction with the statements of Gulliver, Wagner, Owen, Donné, Henle, Vogel, and Duckett), but that the nuclei contain, coiled up in a disk, filaments which have the faculty of unwinding to form fibres, and thus contribute to the formation of the tissues.

We allude to the similarity between the opinions of Dr. Barry and those of our author, merely for the sake of calling attention, at the same time, to their disagreement upon the comparative importance of the red and the white corpuscles of the blood in the scale of organization, and in the process of nutrition. While Dr. Barry attributes all the processes described by him to the *coloured* globules, which he regards as derived originally from the colourless, or "parent cells," Dr. Addison, on the other hand, holds that the latter are more "complexly organized," and are higher in the scale of development than the former; and he looks upon them as the foundation of the tissues, and the "special secreting cell." He says: "The *colourless* corpuscles of the blood are very highly organized cells, within which the special tissues and secretions are elaborated; and it appears that the renovation of these tissues and secretions from the blood does not take place by the cells discharging their contents into the general mass of the circulating current, to be separated therefrom by some peculiar transcendental and hypothetical selective process of exudation, through a structureless and transparent tissue, but by being themselves attached to, incorporated with, and performing their special function in the structure." (*Trans. of Prov. Med. and Surg. Associa.*, xii. 261.) It would naturally be expected that the number of colourless corpuscles should bear some proportion to the numerous and important functions which, according to the above extract, they are destined to fulfil. Now their number in the blood is so trifling, compared with the red globules, that they have very often been altogether disregarded by microscopists. Dr. Addison says, however, that they are very numerous in vessels actively engaged in nutrition, and although it is not apparent by what mark such vessels are to be distinguished from others, we are willing to grant that, under certain circumstances, their number may become augmented. Dr. Addison further states (*loc. cit.*, xii. 260), that he has seen them fibrillating so as to form the walls of the vessels; that they adhere to and become imbedded in them first, and contribute, with the

filaments which result, to the formation of the tissues. It is at this point that we look anxiously, but in vain, for the demonstration of the manner in which these bodies, whole or disintegrated, become part of the living texture. We hoped that Dr. Addison had succeeded in tracing them further in their progress, had seen them reappear on the outside of the vessels, and devote themselves to the functions he has assigned them. But he has not been able to do more than his predecessors, and we are obliged to be content with an experiment which we find termed a "*glaring instance*" of a compact, tough, elastic, colourless, and fibrous tissue, forming from the colourless elements of the blood; the several stages of its formation being "actually seen and determined." He says (*loc. cit.*, xii. p. 244): "if blood be drawn from a person with rheumatic fever, and a drop of the *liquor sanguinis*, before coagulation, be placed on three slips of glass, at intervals of thirty or forty seconds, and then examined with the microscope, the first will exhibit colourless blood-corpuscles in various conditions, and numerous minute molecules distributed through a more or less copious fibrous network; and the last will show a tough, coherent, and very elastic membrane, which cannot be broken to pieces, or resolved into smaller fragments, however roughly or strongly the two pieces of glass be made to rub against each other." In a second experiment, the corpuscles, *after the addition of a drop of water, or of liquor potassæ*, were seen to rupture and discharge their contents, leaving molecules, granules, and filaments, upon the field. In like manner, the formation of the buffy coat of inflammatory blood, is explained upon the supposition that the colourless blood-corpuscles, which, in inflammatory diseases, are found to become more numerous, rupture from the sudden change of temperature, or from other causes, and discharge their contents, consisting of liquor sanguinis and molecules; the liquor sanguinis then rises, drawing with it the molecules and corpuscles not yet ruptured, and fibrillates "as it would have done in the living vessels, had the contents of the corpuscles been appropriated to the purposes of nutrition."

It may justly be inferred from the foregoing extracts, that our author holds the opinion, that the coagulation of blood removed from the body, represents the process of fibrillation, or the formation of fibrous tissues within it, and that, in both instances, the changes which take place are due to the disintegration of the colourless corpuscles of the blood. We will not repeat here the objections which have been already made to the endeavours to establish a theory in any other way than by direct demonstration; but the argument before us is not unlikely to mislead some, under the idea that the point in question has been actually demonstrated. There is, however, no parallelism between the phenomena which Dr. Addison endeavours to assimilate; for manifestly, the changes which take place in blood, after being removed from the vessels and left undisturbed to the operation of physical laws, cannot be brought into comparison with the vital processes which are constantly in play in the living body. These phenomena are assumed to be similar, because, in the experiments above given, a so-called "membrane, tough and elastic," was formed. However much the buffy coat may resemble an "elastic fibrous tissue" under the microscope, it certainly presents no such appearance to the unassisted eye, and, in the rapidity of its formation, is very unlike the normal membranes of the living body. In fact, these experiments bring Dr. Addison somewhat into contradiction with himself; for, when assigning a reason why the nutritive process, as described by him, cannot be seen in the irritated web of a frog's foot, he says that the changes are, in this example, too *slow* to be followed; that the corpuscles go on congregating in the irritated tissue for an hour or two, but that, "if the part were patiently watched for a sufficient length of

time, *it is very possible* that still more of the process might be seen." Yet so expeditious is the nutritive process *outside* of the body, that we have, in coagulated fibrin, "a glaring instance of a compact, tough, elastic, colourless and fibrous tissue, forming from the colourless elements of the blood," in a few minutes.

Moreover, much of the novelty attaching to Dr. Addison's theory of the exclusive function of the colourless corpuscles in nutrition is lost, by his declaration that they contain the *liquor sanguinis* and become instrumental in promoting the growth of the tissues only by their rupture and the discharge of their contents. Now, according to the general belief of physiologists,—in opposition to which there are no objections, and which cannot at least be disproved, if it cannot be demonstrated,—the body is nourished out of the plasma of the blood, or the *liquor sanguinis*, which transudes the walls of the capillary vessels, and the various secretions are formed and elaborated by the organs, in conformity with laws whose operation it is not in the power either of chemistry or the microscope to unravel. But Dr. Addison creates for himself very unnecessary difficulties, by enclosing the *liquor sanguinis* within the corpuscles and thus rendering its escape from the vessels impossible. And indeed, he goes even further than this, for notwithstanding the comparatively small number of colourless corpuscles in the blood, he says (*loc. cit.*, xii. p. 248), "Neither the fibrinous element nor the serum circulates in the blood as part of the fluid in which the red corpuscles are suspended in the living vessels; they are both enclosed within, and form, incorporated together, an essential ingredient of the interior contents of the colourless corpuscle." What, then, it may be asked, is the nature of the liquid in which the corpuscles move when in the living vessels? It is impossible to determine; for it cannot be procured for experimental examination, without being mingled with corpuscles; nor, according to these views, without some of them bursting and mingling with it their own contents. Perhaps no better instance than the above could be found, by which to exemplify the indifference to consequences which the zealous theorist entertains. It would seem that a moment's reflection would render the untenable nature of the above proposition so manifest, that it is a matter of great surprise to us, how it could ever have been seriously advanced, for it not only has no facts to sustain it, but is intrinsically absurd. For, as the blood is constituted of the corpuscles and the *liquor sanguinis*, and the latter of water, holding fibrine, albumen, and numerous salts in solution, if it were possible to separate the fibrine and albumen from the other elements, and enclose them within the colourless corpuscles of the blood, we would have two fluids of different densities separated from each other by the delicate coat of the corpuscles. The necessary consequences of this condition of things would be, that an interchange of elements would immediately commence, according to the laws of endosmosis and exosmosis, and the contents of the globules, and the liquid in which they swam, would very soon acquire the same specific gravity.

The views entertained by Dr. Addison, of the constitution of mucus and pus, deserve notice here, as forming an essential part of his theory of nutrition. In the outset, mucus is supposed to bear a remarkable analogy to the liquor sanguinis at the surface of buffy blood. (*Loc. cit.*, p. 248.) The latter "is a plastic fluid, containing numerous molecules and colourless blood-corpuscles; and when the fluid fibrillates, it incorporates the molecules and unruptured corpuscles, forming tissue." The former "is a glairy, semi-fluid tissue, containing numerous molecules and colourless mucous globules; mucus frequently exhibits a copious and distinctly fibrous character or structure, and

always does so when a *little dilute acid* is added to it, an addition which cannot form the fibres." An experiment was made upon some mucus from the nose; it became whitened by the addition of a drop of dilute acetic acid, and "its fibrous structure was rendered very evident." A drop of healthy pus, when mixed with liquid potassa, lost its opaque character, and became clear, transparent, and tenacious, resembling mucus, an appearance which was found to be owing to the rupture of the corpuscles; but, upon the addition of a little dilute acetic acid, it resumed somewhat of its former white aspect, and being pressed into a thin film, under the microscope, showed "as copious a fibrous structure or character as the fibrillated liquor sanguinis."

These experiments, Dr. Addison thinks, set at rest the question of the difference between pus and mucus, prove the identity of mucus and pus globules, and show them to have a common origin in the colourless corpuscles of the blood. It does not appear to us, that our author is warranted in the inferences which he deduces from these experiments. It is hardly allowable to claim identity of character for two organic products, on the ground that they may be brought to resemble each other in one property, by the application of chemical reagents, whose mode of action upon them is unknown; and much less that any argument for their common origin can be drawn therefrom. The acknowledged difficulty of distinguishing the mucous from the pus globule, under the microscope, has never before, as far as we are aware, been made a ground for assuming them to be identical; for if this were to be made a test of the character of microscopic objects, it would be just as correct to assume all primitive cells to be similar in nature, because they happen to be so in appearance. The actual constitution of granules, nuclei, and cells, is not ascertainable by these means, and the employment of chemical substances to disintegrate or alter them in any way, so far from elucidating their nature, serves only to render the solution of the problem more difficult. Moreover, a candid investigation of the actual relations of mucus and pus would seem to require, that the inquiry should not be restricted within one method of observation, but that they should be carefully compared with the results and facts already known. In this manner many facts, obtained by microscopic observation, have been confirmed, and their real truth and importance established. But, in this case, we find, that our previous knowledge conflicts seriously with the inferences which Dr. Addison would draw from his observations. Mucus is a normal secretion, peculiar to certain membranes of the body, when in the healthy condition; while pus, on the other hand, is the product of disease. We do not find the former replacing the latter, except in those membranes whose province is to secrete it, and only after the inflammatory condition has entirely ceased. Nor do we see pus replace mucus, unless inflammation first takes place. For inflammation is evidently not an exaggeration of the nutritive process, and the difference between its products and mucus is merely quantitative, since it is precisely during its continuance that normal nutrition is suspended; the increase in bulk which occurs in inflamed parts being due to effusion of blood-plasma into the tissues, and not to an increased development of the elements of the tissue which would constitute a true hypertrophy. Hence, if mucus, which is a normal secretion, does not represent an earlier stage of pus, which is the result of inflammation, a fortuitous resemblance of its microscopic elements to those of pus can hardly be looked upon as sufficient reason for the rejection of the evidence of our senses and previous knowledge; nor can we conclude with Dr. Addison, that the chief distinction between mucus and pus arises from the number of unbroken cells in the latter, with imperfectly elaborated contents, while the peculiarity of mucus and other

healthy secretions is due to the disintegration or opening of the cell, and the discharge of its contents. We may add, that Dr. Addison is not supported in his views of the identity of the microscopical elements of these secretions by other observers. Hodgkin, Vogel, Valentin, Guterböck, Henle, and many others of equal authority, have been content to own the difficulty of laying down any fixed character as peculiar to either of these products; the inferences which Dr. Addison has considered himself warranted in drawing, are peculiar to him, and have been neither suggested nor confirmed by any other microscopist, although several years have passed since their first publication.

The objections which we have made to the explanation of the processes of nutrition and secretion, by a description of the changes which are supposed to take place in the coagulation of blood, and to the mode of determining the relations of pus and mucus, have involved, for the time, a tacit concession of the truth of an assumption, which still remains to be proved. This is, the passage of the *colourless* blood-corpuscles through the walls of the vessels. The *red* globules, although smaller than the others, have not the same faculty granted to them. This passage is, according to our author, the first step in the process of nutrition, and we may add that, without it is fully demonstrated, the whole system falls of itself to the ground. It is incumbent upon Dr. Addison to demonstrate it, if he would invite belief in the propositions advanced by him; and, until this were done, we might very well dispense with any examination into its correctness. But Dr. Addison owns his inability to prove the passage of any of the blood-corpuscles through the vessels, and that he has not actually seen it; yet, at the same time, he says (*loc. cit.*, xii. p. 264), "In normal nutrition, they adhere to the tissue forming the boundary of the blood-channels; they *pass into* and contribute to form the tissue, and are afterwards evolved or thrown off from the nearest surface, a follicle, crypt, or duct, constituting epithelial cells;" also, "the facts contained in these researches, with others, which have for some time been accumulating from other sources, are quite incompatible with the doctrine, that all the blood-vessels have *permanent tubular coats.*" It will be at once seen, that the establishment of this fact would be fatal to Dr. Addison's theory; but few will be found to assent to such an inversion of all principles of induction as that, because facts will not support a theory, they may be disregarded in order that it may stand. An incompatibility of facts with opinions, is a singular argument for the validity of the latter.

If it be proved that the capillary vessels are provided with independent walls, it is clearly impossible that bodies of the diameter of the blood-corpuscles, whether red or white, can pass through them; for it is well known that some of these vessels are so exceedingly minute, that it has been a matter of doubt whether the blood-globules circulated through them at all, for which reason they received the name of *vasa serosa*. Their area was found to be too small to permit the passage of the corpuscles, and it has since been discovered that it is only by means of their elasticity that these bodies, in elongating themselves, can penetrate them. This being the case, how is it possible to suppose that corpuscles with a diameter of $\frac{1}{2000}$ to $\frac{1}{800}$ of a line, can get through their interstices, which cannot of course compare with the diameter of the vessel itself. Dr. Addison has divided the capillary vessels into two classes, the fibrous and the corpuscular, with some of a mixed character between the two; the first are found chiefly in the serous membranes, the others in those organs or structures which are termed corpuscular. This we are to understand as "expressive of the soft, friable, parenchymatous texture formed of elaborating cell-organisms, the term cellular being limited to those which

are coherent, non-elaborating, and elastic;" the liver, brain, and intestinal villi are examples of the one, the lung is a specimen of the other. By a "corpuscular capillary" is meant one that is "bounded by the special elements of the texture, having walls consisting of cell-organisms." In other words, there are capillaries which have walls of their own, and there are others which have none, but are merely channels in the tissue. Yet the process of nutrition is, according to Dr. Addison, accomplished by the transit of the corpuscles through the coats of the vessels, and, we would add, that it is apparently conducted in the same manner in all parts of the body. Hence, those structures which are not provided with the corpuscular capillaries, are entirely cut off from any means of nourishment and growth. If we turn, however, to the works of other physiologists who have examined this point, we will find nothing to substantiate the theory which Dr. Addison endeavours to maintain. Henle (*Allgemeine Anatomie*, S. 537) says that, apart from the reasons we have, from observation of the steadiness of the current, to believe that the capillaries are not merely channels in the tissue, the existence of independent walls has been proved by the complete separation of the capillary network from the parenchyma by maceration. This fact has been demonstrated by Windschman, in the plicated organ of the cochlea of the ear in birds; by Müller, in the cortical substance of the kidney of the squirrel; by Valentin, in the villi of the small intestine, and by Schultz, in the plexus choroides of the brain. Treviranus isolated the capillaries of the brain, and describes their tunic as being of an homogeneous structure. Berres (*Anatom. Microscop.*, Viennæ, 1837), in his great work upon the microscopic anatomy of the capillaries, has demonstrated that they are disposed in the various organs of the body, according to a system which is, in similar organs, constantly uniform and peculiar; and he says, further, that they all possess an independent membranous wall, which he terms the "*membrana polita s. glabra.*"

Wagner (*Physiology*, p. 288), in like manner, avers that the finest vessels have always distinct parietes, constituted of a simple membrane of great tenacity, and generally structureless, and that even circular fibres are discernible in those of $\frac{1}{500}$ to $\frac{1}{1000}$ of a line in diameter. Schwann also describes these circular fibres in the capillaries of the mesenteric vessels of the frog. Hyrtl (*Handbuch der Anat.*, S. 94) says that the finest capillaries, viz. of $\frac{1}{2000}$ of a Viennese line in diameter, possess a simple structureless coat. This, he adds, is so thin and transparent, that, in the living structure, it can be seen only by means of the blood circulating through it, and that it is permeable only for the fluid constituents of the blood. Bischoff (*Entwickelungs Geschichte*, S. 273), in his observations upon the embryos of frogs and fishes, has often observed that, in a capillary loop, the walls of which are visible, not a single corpuscle will, for some time, pass. Suddenly, however, one will enter from the neighbouring vessel, and be soon followed by others. This circumstance, he remarks, may very easily give rise to illusions with regard to the existence of independent walls to the capillary vessels. Direct and demonstrative proof, like that which is here cited, must outweigh a volume of negations; for, as we have seen, Dr. Addison brings no evidence, drawn from observation, in support of this part of his theory. We might, indeed, have declined adducing testimony in favour of what has good claim to be considered an established fact, until proof of the same nature had been produced in opposition to it; but, in view of the plausibility of the system of nutrition advanced by our author, it seemed proper to place a brief sketch of the actual state of physiological knowledge on this point before those who might be otherwise misled.

The last work of Dr. Addison contains the further development of his sys-

tem of nutrition, and its application to the pathology of consumption and scrofula. It is divided into chapters, which are termed respectively, Practical Physiology, Pathology, Psychology, and the Symptoms, Causes, and Therapeutics of Consumption. It would require a far more extended notice than we think warranted by the nature of its contents, should we undertake an analysis of this volume. The disregard with which the observations of the most eminent authorities are passed by, except when they happen to coincide with our author's views, would be of itself a sufficient cause to awaken distrust in the mind of any impartial student. But it is the remarkable fallaciousness of the reasoning, which is the prominent characteristic of this work. It may be called bold, and, by the superficial reader, plausible, but we think that, had it emanated from any one of less authority than Dr. Addison, it might be characterized in less equivocal terms. That portion of the work devoted to the therapeutics of consumption and scrofula, contains, as might be expected, little of novelty for the practical physician. The details of cases, given in the language of patients of evident refinement, although occupying more space than is usually allotted in scientific treatises to such communications, are very readable and interesting. In the chapter upon the etiology of consumption, there is a fair specimen of the mode of reasoning in which Dr. Addison seems to excel; we refer those who may wish to discover the reasons for believing "*atelectasis pulmonum*" to be the principal cause of consumption, to examine for themselves, as the argument by which this doctrine is supported does not appear to us to be susceptible of analysis.

We have, however, a few words to say of Dr. Addison's pathology, in a more general sense. For him, the usual division of diseased products into homologous and heterologous, has no existence; tubercle is not anything different from the normal structure of the human body. Inflammation and tuberculization are merely different stages or phases of one process; the material effused in pneumonia does not differ from tubercular infiltration, except in its being absorbed (page 52), or becoming capable of absorption; and a hepatized lobule may not be distinguished from a semi-transparent granulation, except that the one is recoverable and the other is not. The whole system rests upon the "conformable" or "unconformable" changes of cells (*i. e.*, the colourless blood-corpuscles). The natural order, according to which the tissues are developed, is from cells to fibres, cartilage, and bone. The first represent the "embryonic," or corpuscular structure, the latter, the adult or fully formed structure. If, now, the elements characteristic of the embryonic structure appear among, and take the place of those more fully advanced in the scale of development, disease is the result, or rather those forms of disease which Dr. Addison has chiefly in view, viz. consumption and scrofula. For example; if a bone be broken, and from the elements first effused after the injury callus is formed, and subsequently new osseous matter deposited, the new elements conform in all respects to the law of the texture, and the result is a cure. If, however, the "morphology" be unconformable, the nutritive matter effused does not undergo the necessary transformations, and the fracture remains ununited; for, by the words "unconformable morphology," we are to understand, an indisposition upon the part of the cells, with their plastic contents, to resolve themselves into fibres, cartilage, and bone. But it is not easy to see what real explanation of a morbid process this can be. For, if a fractured bone does not unite, nor a wound heal, it is, perhaps, not incorrect to say, that the morphology is unconformable, but it is no explanation *why* the reparative process does not take place. The use of these words is, therefore, only suited to lead the unobservant to believe that they know thereby more of the condition of the parts in question than they did before. It is,

moreover, a matter of surprise that Dr. Addison should have fallen into so common an error, when he subsequently, in another place (page 74), himself stamps it with its true character; he says (page 33), "We frequently see children falling away without evident cause, and we have found parents quite satisfied when told it is an atrophy—an expression conveying not one whit more information, either to the physician or the patient, than what is known to every casual observer."

The so-called "retrograde metamorphosis" forms, however, a more essential portion of our author's pathology. "Villi, papillæ, follicles, and granulations are," he says, "characteristic of the mucous tissue." "In the embryo, all tissues being corpuscular, it is some time before any distinction between mucous and serous textures exists." "In the adult serous and fibrous textures, there are no granulations, villi, or follicles, as in the mucous membranes; but, when they are attacked by inflammation or scrofulous disease, they assume a granulation or villous state, concomitantly with a change in the elements of the walls of the vessels from simple fibres to cell-organisms. This is a retrograde metamorphosis—a condition analogous to the embryonic state." (Page 35.) It is possibly true, notwithstanding recent investigations have thrown doubt upon the fact, that the corpuscular tissue lies at the basis of all others, or, in other words, that nerve, fibre, bone, and every organized tissue, are originally derived from a cell. In this sense, it may be justly termed an embryonic structure, if we first clearly understand that a corpuscular and a mucous tissue are not necessarily one and the same, as Dr. Addison inculcates; for it does not by any means follow that, because mucous membranes are mainly corpuscular in their arrangement, therefore all tissues of a corpuscular character are mucous tissues. In the adult, the mucous membrane is as much a permanent and perfect tissue as is any other; and, if it may be called embryonic in any sense, it certainly cannot be in that of its being imperfect, for, in the words of our author, "the corpuscular textures hold a higher rank, have more activity than the fibrous, the mucous than the serous" (page 38); and yet, with singular inconsistency, the appearance of this texture among fibrous structures is termed a *retrograde* metamorphosis. We are told that, "in consumption and scrofulous disease, cell-organisms, characteristic of the embryonic structure, and of blood, reappear amongst and supplant the elements characteristic of the healthy adult texture;" and again, "retrograde metamorphosis occurs when the form and qualities of a texture are completely changed by the intrusion of elements distinctive of a *prior or lower* type." (Page 20.)

Dr. Addison quotes the observations of Guillot, and of Schrœder Vanderkolk, in reference to the supplementary circulation in tuberculous lungs; but with the exception of a coincidence in the employment of certain words, it is difficult to see what support the peculiar pathological system under discussion can derive from them. The tufts of new vessels, seen upon the walls of a tuberculous cavity, present, when viewed by a common lens, a "sort of villous structure," and there is a vascular network surrounding these cavities and connected with the aortic system. The authors above named, make use of the word *villi* only as a means of illustration, whereas Dr. Addison understands thereby all structures of an embryonic character, or imperfect in development. They, as well as all other writers, speak of semi-transparent granulations as an early stage of tubercle; but in Dr. Addison's work, "granulation" is but one of several terms by which structures composed of "cell-organisms" are designated. It is from the similarity of their elementary or microscopic composition, that our author considers himself entitled to make use of them as convertible terms, and to confound the granulations of a healing wound and

the villi of a mucous surface with the products of tubercular disease. Dr. Addison says that his post-mortem examinations establish the facts, "that the growth of corpuscular granulations or villi, in the serous and fibrous textures, is the primary change; the transformation of these granulations into opaque tubercles or tuberculous matter is the next, and the retrogradation of the natural textures surrounding the tubercles are the essential phenomena of consumption, the indispensable anatomical change of phthisis." (Page 63.) "It would appear," he also states, "from the frequently stationary character of pulmonary tubercles, from the absence of any active nutritive function in the texture around them, from their degenerated structure and want of vascularity, that they are blighted granulations." Now we would ask, what resemblance does the tubercular granulation, which is a semi-transparent, unorganized morbid product, bear in its origin, course, or destination, or in its pathological significance, with the vascular, secreting granulation of a healthy surface, or of an ulcerating wound? None, except in its granular form and in its microscopical characters; cells entire or fragmentary being found in both. If its form be a sufficient reason, the miliary tubercle might as well be termed a millet-seed, as a granulation; and with regard to its microscopical characters, it is very certain that no one can be justified in assuming the presence of microscopic cells, in structure and products otherwise totally dissimilar, as indicative of a common origin, or a common character. We are at a loss, also, to understand what can be meant by a blighted granulation! The reasons assigned as warranting the use of this appellation in the case of tubercle, might with equal justice be applied to any other stationary morbid product or tumour. A lipoma, a simple fibrous, or an encysted gelatinous tumour, or a scirrhous deposit, might likewise be said to be composed of blighted granulations, on account of the absence of nutritive energy in the surrounding texture, their degenerate structure, and want of vascularity.

We have endeavoured, as far as was consistent with the necessarily limited space of this article, to place fairly before our readers Dr. Addison's theory, and the observations and hypotheses upon which it rests. The comments we have made upon it, have sprung from our disagreement with the author upon the principles necessary for the establishment of truths in this interesting department of medical science, as well as from our conviction of the fallaciousness of the reasoning by which he seeks to maintain his positions. We would not conceal our admiration of the eloquent and attractive style in which this new system of nutrition is put forth, nor deny that it is illuminated by a brilliant fancy and pervaded by a strong religious feeling; yet it is but too evident, that it owes to these very merits that plausibility, which, notwithstanding its radical defects, will recommend its adoption to the superficial reader. But the interests of medicine are now so closely linked with the progress of microscopic anatomy, that we cannot insist too strongly that the facts won by the microscope from fields before unvisited by observation should be real and not spurious, and that the rapidly advancing car of medical science should be turned from its headlong and erratic course, and conducted back into that only broad and safe highway which leads to the goal of truth.

M. S.

ART. XV.—*On Gout—its History, its Causes, and its Cure.* By WILLIAM GAIRDNER, M. D. 12mo. pp. 232. London, 1849.

THE treatise of Dr. Gairdner, though brief, and on a subject which has occupied the pens of some of the most distinguished medical writers of the present, as well as of the past century, will be read with interest and not a little profit, by every physician whose circle of practice obliges him frequently to prescribe for a malady, the pathology and treatment of which are still but imperfectly understood, and of which it may with truth be said, that "not any of the diseases to which man is liable is a cause of greater perplexity and disappointment" to the practitioner.

Although we are not prepared to assert that the author of the treatise before us has succeeded in clearing the pathology of gout from all the obscurity with which it has heretofore been invested, and in demonstrating the true theory of its causation and nature; still, his views in relation to the pathology of the disease appear to us worthy of consideration, from their greater clearness and exactness, than those heretofore advanced, as well as from the *vraie semblance* with which they are clothed by the arguments and illustrations he has advanced in their support.

We extract from the first chapter the following remarks of the author, which exhibit the commendable spirit in which his peculiar views of the disease under consideration are announced.

"In the earliest years of my professional life, my mind was frequently called to the consideration of gout; to the observation of its various forms, the unravelling of its strange and confusing associations with other known forms of disease, and meditation on its cause and nature. I well remember how often I was perplexed by its obscure indications; how often I was surprised to discover it lurking unsuspected in the system, disturbing the healthy functions, and how much I was puzzled by seeing the symptoms of other diseases swayed from their natural and ordinary course in consequence of the intermixture of gout. The records of medical science afforded a very imperfect solution of many of these difficulties. In them, indeed, were to be found laborious and often weary descriptions of the disease; its phenomena set down with a methodical accuracy, but very seldom presenting to me a picture of the facts I had witnessed, and rarely, indeed, shedding any useful light on their nature. In these minute and exact histories, the symptoms are often classed in such a manner as to exhibit the great diligence of the observer, and yet lead the mind of the reader, as little as may be, to a ready appreciation of their nature. The best arrangement we find, is that of the order of their occurrence, yet this is not always followed. It is true, as might be expected, that a practicing physician of the present day will scarcely find his attention arrested by a circumstance or symptom of this disease, unrecorded by his predecessor; yet it is equally certain, that, in the doubts which assail his mind, he will often turn in vain to their writings for the solution of his difficulties.

"I have hailed with great interest the works which have occasionally proceeded from some of our ablest physicians during my time, and particularly some writings which have, within these few years, issued from the press. But though I have found much matter of instruction in them, I have been mortified not to discover certain observations and thoughts of my own reflected in the mind of my colleagues. Recollecting that my own opinions had undergone great change, I have been led to further inquiry, and though on certain points I may feel doubts strengthened, there are others on which re-examination and reflection only bring additional conviction. What these are will sufficiently appear in the following pages. Whether my interpretations are true or false, my cotemporaries must judge. But believing it may be of use to promulgate opinions

earnestly and honestly formed, not so much from reading as from observation and meditation, I venture, with diffidence, indeed, to add another volume to the many already written on this subject.

"I shall be more readily excused for calling upon physicians to read another book, if the opinion I entertain of the great frequency of gout be correct. We are apt not to consider a man as gouty, unless he has suffered under a regular fit of the disease. I believe the gouty diathesis is often most perfectly developed in individuals who never see its local manifestations, and I am convinced that the strumous is not more frequent than the gouty habit."

The first three chapters of the treatise are devoted to a description of gout in its *regular* and *atonic* forms; the only varieties of the disease which the author admits; they alone, according to Dr. G., having a solid distinction in the nature and form of the disease.

The premonitory signs of an approaching attack of gout are concisely stated in the first chapter. Dr. G. considers it of much importance that a clear conception of them should be formed, and that they should be distinctly noted as it is at this period that remedies are most effectual; by guarding the patient from the further inroads of the disease, they are then calculated to save him from much suffering and danger.

The author's history of the regular form of the disease, through its three stages, marking its increasing effects upon the constitution, with its termination and sequelæ—apoplexy, menorrhagia, hemorrhage from the bowels, hemorrhoids, melæna, dropsy, and sudden death—is full and clear; it presents an admirable picture of gout, divested of those features which are not peculiar to it, but which mark all great disturbances of the system, being the general indications of all severe sufferings.

The description of the disease given by Dr. G., is from those cases in which its course is uninterruptedly and decidedly downwards. This was necessary, in order to present a full and correct history of gout. The author, however, warns his readers that the disease does not always fill up such a history as he has presented, and that such an array of symptoms as he has delineated, are not always, or usually present. On the contrary, he admits that the cases in which the constitution struggles well with the malady are very numerous, and that these do not occur, for the most part, in the strongest individuals.

"Very often," he remarks, "they are found in persons of loose fibre, in whom the action of the heart is sound and unimpeded. Such persons generally have sharp and feverish attacks, attended with considerable temporary weakness. It is indeed not uncommon to see them pass through a long and self-indulgent life, with regular annual, or biennial attacks of gout, which seem to have no other effect than that of restoring the individual to the enjoyment of better health, and even to observe the disease at the close of life, when all the vital and natural powers have felt the influence of time and progress of decay, also abate in virulence, and actually cease to trouble."

We have been tempted to give a synopsis of the author's very able history of gout, when it follows its regular course, from its first faint beginnings to its conclusion, as well as of his description of the disease in its irregular and devious course, as it occurs in persons of a constitution naturally feeble, or in those weakened by debauchery and excess, or worn out by the cares, fatigues, and accidents of life; but we found that, by so doing, we should present our readers with but an imperfect outline of what cannot be well appreciated when divested of any of its details.

In the fourth chapter, Dr. G. examines the theory of the dependence of gout upon a morbific matter, which, it is supposed, the regular fit of gout eliminates from the system. The inaccuracy of this theory he points out, in a

few very concise remarks. The easy and profitless explanation of a *materies morbi*, finds little countenance from physicians at the present day. Another opinion however prevails, which though it leads, as Dr. G. admits, to a sounder mode of treatment, seems to him to involve hardly less of error. This is the stomachic origin of gout, originating in the fact that symptoms of disturbed digestion are the frequent, if not the invariable accompaniment of the disease; and from its true position, as a consequence and satellite of the gout, the disorders of the stomach, upon which these symptoms depend, have been erected into a cause.

"One of the most remarkable results of arthritic indigestion," Dr. G. remarks, "is the presence of acid in nearly all the excretions of the body. This has, of late years, been called the uric acid diathesis. The adoption of such a term would imply a conclusion, to which I am by no means prepared to assent. By a diathesis, I understand a condition of the constitution, and not a simple affection of certain fluids of the body. Undoubtedly, this acid condition is very general. Dr. Garrod has lately much extended our knowledge by a very interesting proof of the existence of uric acid in the blood. Its existence in the joints had been previously made manifest by Wollaston; Landerer found it in a concretion between the coats of the aorta; it has been discovered in several fluids of the body in a state of disease. But, admitting that these accumulated facts are sufficient to justify us in the use of the expression to which I have adverted, it could not, by any means, be called the uric acid diathesis, for it appears that various acids make their appearance in the secretions. Berthollet supposed that the acid of the sweat was the phosphoric; Berzelius and Anselmino showed it to be the lactic; Thenard found acetic. No one, too, as far as I know, has ever found uric acid in the stomach; but there seems little doubt of the presence of the hydrochloric, the lactic, and the acetic, in cases of dyspepsia. This idea of a uric acid diathesis, as the cause of gout, meets with another and a fatal difficulty, from the fact that urates in the urine are common to gout, and to many other diseases. Ordinary indigestion, from whatever cause, or a slight and ephemeral fever, will cause this appearance. Dr. Prout has, indeed, here established a solid and useful distinction between that deposit of urates which is occasional and transient, and that which is more durable. 'The lithate of ammonia in the urine, is one of the most common attendants of slight dyspepsia from errors of diet.' But the same substance makes its appearance in the urine in a less transient manner, in the course of severe diseases not of a local nature, 'when no food has been taken into the stomach, and when, therefore, its formation can only be attributed to secondary mal-assimilation of the albuminous contents of the blood, and albuminous tissues.' But I have seen, and I am sure Dr. Prout has seen, very durable deposits of urate of ammonia in cases where no great constitutional disturbance, such as lepra or psoriasis, existed; where no unusual disintegration of the tissues was going forward, and where no interruption to ordinary wholesome nourishment was suspected. But, in order to establish the presence of uric acid in the circulating fluids as the cause of gout, it would be necessary to prove that it is never absent. There is nothing, however, of which I am more perfectly satisfied than that I have often seen cases of true regular gout, in which there was no evidence of excess of urates in the urine; and the cases are not rare, in which deposits of earthy phosphates, and mixture of earthy phosphates with urates, are met with."

"These are sufficient reasons for objecting to the use of so hypothetical an expression as the uric acid diathesis, and for believing that the expulsion of urates from the system through the urine, and of other acid and earthy matters through this and other excretions, is to be looked upon only as one of the many consequences or symptoms of gout."

Dr. G. believes that it cannot now be doubted, that uric acid, as well as urea, is a necessary and constant ingredient of pure and healthy blood; that though derived from the food, they are not imbibed with it, but are formed within the body, and enter the blood in the earlier stages of assimilation; and

that we are yet ignorant of any useful purposes they serve, and can only consider them in the light of refuse or effete matters, which, if not duly eliminated by the kidneys, are productive of much disturbance to health. He believes that the disappearance of these substances in the urine, and their accumulation in the blood, are merely a frequent symptom and consequence of gout, which is itself, again, the cause of other important phenomena.

"This is, indeed, the frequent cause of that general cachectic condition so often seen in gout: hence arise distressing headaches, somnolence, and indifference. It is also," Dr. G. supposes, "the origin of much of the dyspepsia with which the gouty are afflicted, and to this circumstance are to be traced those disastrous cases in which we see sudden death resulting from some violence affecting any great function of the body."

Dr. G. had, for a long time, a strong conviction that, in the altered relation of urea and uric acid to each other, would be found the explanation of many morbid phenomena, and that, in certain morbid states of the system, the nascent urea becomes uric acid during the assimilation of the food.

This latter opinion is at variance with that advanced by Liebig and Wöhler, who consider the uric acid as the parent of the urea—a supposition that is based upon very slight and inconclusive evidence, and will not stand in the way of the adoption of the view suggested in the work before us, in the support of which the author has adduced a number of apparently conclusive observations. These observations, if devoid of error, show that as the amount of uric acid in the urine is increased that of the urea is diminished, and *vice versa*.

Dr. G. believes that, in a state of health, the elements necessary for the composition of urea are separated from the blood; but that, under the influence of the gouty diathesis, the secretion of uric acid takes place with greater abundance.

After presenting the atomic composition of urea and uric acid, the author remarks:—

"A simple inspection of these figures is suggestive of much important reflection, having a direct application to the facts of this disease, and shedding light on the function of respiration itself. If, indeed, a less perfect consumption of carbon, or elimination of carbonic acid, by the lungs, would give us uric acid in the blood, we may divine not only the origin of the urates in the gouty, but see in what way repose and indolence aid in the production of this symptom of the disease, and how exercise and air contribute to its removal. We may also readily enough understand the vicarious origin of urea and uric acid during the process of respiration, without having recourse to the improbable idea of their transition into one another at a future stage.

"When we consider the atomic composition of urea and uric acid, we can easily understand the experiment of Liebig; but, more than this, we can see its great importance, and its direct bearing on the subject we are now considering. If, by decomposition, we can obtain such changed relations in the elements of uric acid as to yield us urea and carbonic acid, we can have little difficulty in perceiving that the imperfect arterialization of the blood may exactly reverse this process in the living body. To constitute uric acid, the chief change required is the addition of carbon to urea. We have already proved that these substances are sometimes correlative and vicarious; we have made it probable that, as they are found in the blood, so also there they take their origin. The subject seems now so much narrowed, that we may pronounce, with greater confidence, that, in the chemical changes which take place during the process of respiration, the two substances, urea and uric acid, are generated; and, if we scrutinize these changes closely, we may easily perceive circumstances which favour the production of one or other compound, according to the condition of the patient."

"In the history of gout, I have pointed out many signs indicating that the

decarbonization of the blood is deficient. The blue lips, the swollen veins, the bloated complexion, the skin diseases, and general cachectic condition, sufficiently mark this. It is, indeed, evident in the whole natural history of the disease.

"When the blood is perfectly oxygenated, the heart and vessels are roused to energetic contraction; but it is quite certain that, when the expiration of carbonic acid has been less copious, the absorption of oxygen diminished, and a portion of venous blood carried forward into the arterial system, the circulation is slackened, a depressing influence is exercised on the brain and nervous system, congestion takes place in the vessels, and that state of things which I have pointed out as favourable to the creation of a gouty diathesis is speedily brought about."

After noticing the various circumstances which diminish the exhalation, from the lungs, of carbonic acid—as, repose of body, sleep, confined air, intense and long-continued mental employment, anxiety and depression of mind, &c.—Dr. G. remarks, that it has already appeared to him probable that the urea and uric acid, which are constant and healthy ingredients of the blood, originate in the lungs, during the process of respiration; and that no less certain does it appear that, in some conditions of the body, and with some habits of the patient, the carbonaceous matters, which should be cast out of the system, are returned in the blood. He then asks:—

"Can it then be wonderful that, of two ingredients, the one which is most abundant in carbon should now be formed at the expense of that which contains less; that the urates, in fact, should be found in excess in the blood and in the urine, and that the urea should suffer a very material diminution? I have measured the quantity of urine made by the patient whose case is mentioned at p. 85. It amounted to 36 ounces, in 24 hours; and as 4 parts of urea in 1000 of urine had disappeared, it follows that 68 grs. of urea were suppressed in the urine, to reappear in the system in some noxious form or other. This appears to me certainly the real origin of the urates. The injurious effect of so great a change in the secretions of the body, of the suppression of a healthy evacuation, its reappearance under a more noxious form, and of the retention in the blood of a poisonous ingredient, must be obvious to all practitioners."

Dr. G. has illustrated the correctness of this view by a comparison of the urine secreted during sleep, with that passed in the day; the condition of the urine in an asthmatic patient, breathing with difficulty; that passed during repose and during active exercise; that passed by males and females; that passed by individuals living on different kinds of food; and in this manner showing that all those circumstances which impede the activity of the process of respiration, and favour the accumulation of carbon in the blood, diminish the quantity of urea, and increase that of uric acid, in the urine; whilst all those conditions which increase the activity of the respiratory function, and facilitate the arterialization of the blood, diminish in the urine the ratio of the uric acid to the urea.

In the sixth chapter, the question of the inflammatory character of gout is discussed. Dr. G. maintains that inflammation is not essential to gout. His reasons for this conclusion are: the rapid occurrence and dispersion, in many cases of gout, of the local disease; the languid circulation of the gouty; the rare occurrence of gout at that period of life when men are most prone to inflammation, as well as in individuals of a robust constitution.

"The heavy and corpulent; those who have loaded viscera and languid circulation; persons of inactive temperament and lazy habits; those in whom other diseases assume indolent and cachectic forms, are its choicest victims. It shuns the stout and healthy labourer; it seizes the fat and dull farmer. It seldom visits the active and athletic sportsman; it revels in the blood and joints of the exhausted debauchee. Its whole history marks it as a complaint of an asthenic character."

"Were gout essentially inflammatory, it might be presumed that inflammation would be its primordial local symptom, and in this case we should surely expect that it would sometimes run the ordinary course of phlegmonous disease. Not only is this not the case, but there seems something in the nature of the disease which prevents the inflammation that supervenes in gout ever running into the suppurative process. I never saw but one instance of phlegmon in gout, and I never saw a more ill-conditioned and offensive discharge."

"The terminations of gout, and its vicarious and cognate diseases, also mark its nature. They are, suppression of the natural evacuations, spasm, cramp, dyspepsia, melancholy, apoplexy, and dropsy."

In Chapter VII., Dr. G. presents his own views of the true nature of gout. Venous congestion, he considers to be the first condition essential to the formation of the gouty diathesis. The capillary and nutrient vessels, distributed on the extreme and sentient fibrillæ of the nerves, being in the same distended condition as the larger venous trunks, and being bound down by the firm fasciæ in which the gout has its usual seat, cause, by their pressure upon the nerves, the painful phenomena which attend the disease. The contents of the over-distended vessels being compressed between the power derived from the heart and arterial system, urging it forward on its course, and the antagonistic resistance of the great veins leading to the right auricle, cause, occasionally, the capillaries to give way, causing a true hemorrhage in the part affected. If the rupture take place in a minute capillary, carrying the serous portion of the blood only, œdema is the consequence, but if the burst vessel be one carrying red blood, a true ecchymosis is formed.

"This view of a fit of gout," Dr. G. remarks, "may startle, from its novelty; but I am thoroughly convinced, from long observation of the disease, that I have given the true rationale. All its symptoms may be readily arranged under this explanation. Any other, that I have ever heard of, leads us into such difficulties as to leave us only in greater doubt than before."

In the eighth chapter, the exciting causes of gout are considered. After showing that it is the disease of the sedentary, the supine, the luxurious liver, and too frequently of the student, and over-taxed man of business—that all its producing causes are such as increase the mass of the circulating fluids, while they impede the full arterialization of the blood, and cause its accumulation in the venous system, Dr. G. condenses the whole argument, under this head, in the following remarks:—

"Chronic diseases may, in one sense of the word, be considered as mere modes of decay of the system. This is true, whether they be the result of original construction, the offspring of our own follies, or the effect of time; but there is no chronic disease which, in my mind, so remarkably exemplifies the progress of decay as gout. When we consider its hereditary descent, we can hardly withhold our belief that, though its great symptoms are exhibited at the decline of life, yet it must lie concealed in the constitution of the young. Physicians who observe carefully the ailments of infants and growing youths, cannot fail to be struck with the frequent indications they give of arthritic disease. From these faint beginnings, to the final destruction of health and life, the course of the disease is gradual, sometimes almost imperceptible, but steady and certain, if its great causes be uniformly maintained. Indeed, I do not know a better measure of decay of the system than is afforded by gout.

"The real pathology of gout appears, then, to me to be comprised under these heads: an increased pressure of the blood from its accumulation in the great veins, and an altered state of that fluid leading to the formation of uric acid instead of urea; these results being dependent on too copious an assimilation of nutriment, on defective respiration, and on more or less suppression of the healthy evacuations from the liver, the kidneys, and the skin. The plethoric state, thus engendered, causes, in strong constitutions, painful manifestations of

the regular disease; in feebler habits, its irregular and atonic forms. But this plethoric condition has its cause, which I have as plainly pointed out as my desire not to assume, in a medical treatise, the censorial privilege of a moralist, would permit. We must still pause for a reply to the dark and intricate question, why some constitutions, when thus affected, generate gout, while others show no tendency whatever to the disease. The progress of science will prove whether that unknown something in the system, which we express by the term hereditary and constitutional tendency, can be laid bare to the senses, or whether it must be for ever veiled from our eyes; but at present it is undoubtedly one of those mysteries of science requiring implicit belief, on which our keenest study has not yet shed one ray of light.

"It is, notwithstanding, very certain that the blood of those persons who fare too sumptuously, and lead indolent lives, is in a less healthy condition than that of those whose indulgence is moderate, and whose occupations are active and salutary. So far, indeed, am I a humoralist, as to believe that chemical researches will lay before us more morbid changes in the fluids than the recent discoveries that the urea and urates in the blood increase, diminish, and alternate with each other, according to the varying condition of the system. These changes will, no doubt, prove explanatory of phenomena which yet perplex us, and they may also become concurrent causes with plethora of the fluids, and the rupture of vessels, in explaining the paroxysm of gout; but, even then, I should not depart from the opinion I have expressed, that they are all of them only signs of that state of the system indispensable for the production of the local phenomena which distinctly characterize the disease. It is unquestionable that, though revealing itself by the outward manifestations I have described, gout is due to a particular tendency of the constitution, of which no explanation can yet be given, and that under suitable circumstances it may never disclose itself."

In Chapter IX., after considering the question of the curability of gout, and arriving at the general conclusion, that, in its earlier stages, the disease is perfectly curable, though not through what is vulgarly called physic, but chiefly from a well-directed course of diet and regimen, Dr. G. enters into an exposition of its true hygienic management. He points out the fact, which he had previously noticed, that the incipient signs of gout may be discovered in infancy; and the importance, therefore, in races where the gout is as certain an inheritance as the patrimonial estate, to commence, from birth, a rational course of hygienic treatment, calculated to extinguish the first germ, and prevent altogether the growth of a malady "which may very justly be regarded in the light of a family curse."

The remarks of our author on the errors committed by parents, in reference to the nourishment of their infants, and the diet of childhood generally, are particularly excellent; and not less so, are the hints he has thrown out in regard to the necessity of a temperate use of a wholesome, nourishing diet, abstinence from heating drinks, daily active exercise in the open air—particularly the free, pure air of the country—cheerfulness of mind, and the avoidance of every species of sensual excess, from puberty upwards, as a means of preventing the occurrence of gout. We believe with Dr. G. that more constitutions are undermined, and a greater amount of disease and suffering produced, by gross errors in regard to hygienic rules, in infancy, childhood, youth, and after age, than from all the other morbific causes to which the human being is liable to be exposed. It is true, many of these errors owe their origin to the ignorance or indifference of parents and nurses, and to the cravings of appetite, mere indolence, or the neglect of sound moral considerations, during the period of youth and maturity; but we fear that some of them are to be attributed to false views, promulgated by physicians who have neglected to study the true principles of hygiene as founded upon the physiological laws of the animal organism.

In Chapter X., the proper medical treatment of gout is pointed out. Dr. G., while he condemns copious blood-letting, believes that the lancet may be employed in such a measure, and with such precaution, as to do good by relieving the over-loaded heart and vessels, which the symptoms of the disease point out as required. Small bleedings (from three to six ounces), he believes, instead of being debilitating, may be ranked with tonics, on account of the cheerfulness, energy, and sense of power, they suddenly restore to patients oppressed by a state of plethora. They most beneficially, too, supplant, he conceives, the use of purgatives, which he asserts to be very often noxious in gout, and attended with considerable risk, when used after the manner recommended by Sutton, for the relief of the fever which attends the disease.

When the abstraction of blood is limited to the small amount required merely to relieve the oppression of the system, according to Dr. G.,

"The secretions of the kidneys and liver, which were arrested by the too great pressure on these organs, are established; the fulness of the head, which prevented the due discharge of the functions of the brain, is also relieved, and the uncloudy nervous influence is transmitted to the most distant parts of the system, with an undiminished power. The consequence of this, is not a return to a state of hyperæmia, but a condition of things in which, with a well-regulated diet, the patient may, if he will, contend successfully with a gouty diathesis."

Dr. G. never makes use of bleeding, in cases occurring in an impaired or defective constitution; he believes that some considerable degree of vigour is necessary to its legitimate use, which is generally the case in the early stages of regular gout. He prefers the blood to be taken from the arm, but in cases where there is much suffering in the head, there is an advantage, he admits, in drawing it by cupping, from the nape of the neck.

Active purging our author condemns, but considers laxatives to be essential. "Even," he remarks, "when patients lead a most abstemious life, it is necessary that the bowels should be relieved occasionally, by medicine." The warm, and even the more powerful vegetable aperients, such as senna, rhubarb, aloes, jalap, and scammony, seem to him far better adapted to the constitution of the gouty than the neutral salts. They may be given with great advantage in the form of tincture, and associated with the warm aromatics, and tonic bitters.

Although Dr. G. objects to the use of neutral salts as purgatives, he has found much advantage from their employment, in small doses, as diuretics, particularly such salts as are formed by the vegetable and phosphoric acids. The latter have seemed to him singularly useful. They aid much, when given in half-drachm doses, frequently repeated, in mitigating the pain, and assuaging the general irritation, which accompanies the paroxysm.

Dr. G. remarks, in reference to the alkalies and earthy carbonates, that, as remedies in gout, they cannot be esteemed of the smallest account, and that they will much disappoint those even who look to them for any signal relief of symptoms.

Tonics, when used at the subsidence of the fit, and accompanied by exercise and suitable diet, he is convinced have not been too much extolled, hardly even duly appreciated. In all those forms of lingering and atonic gout, which affect the distant parts of the body with irregular and flying pains, the stronger tonics, he remarks, will be found useful and potent assistants to the warmer vegetable purgatives. Quinine, in doses of two grains, twice or even three times a day, accompanied by a mild laxative at night, will very often succeed in restoring comfort.

"In the last painful stage of gout, iron will often be found a most important resource, unless there be signs of a strong tendency of blood to the head; this,

however, is seldom the case at the close of an attack of gout. There is a form of the disease chiefly seen in old people, which is manifested by swollen articulations of the hands, with slight derangement of stomach, faltering in the action of the heart, and intermissions of the pulse, for which iron seems to me the best, if not the only remedy. The forms in which I have chiefly used it, are the saccharine carbonate of the Edinburgh Pharmacopœia, a most useful preparation, the citrate and the tartrate."

In regard to the cold water cure, Dr. G. believes that where it is efficacious it is dangerous. In the latter stages of the disease, he does not doubt that it is fraught with the utmost risk; and believes that the facts in this instance, could an honest statement of them be arrived at, would fully confirm this opinion.

Dr. G. has no doubt that colchicum is one of those drugs, whose claim to be considered specific is well established. The *modus operandi* of the remedy is not wholly involved in mystery. It has been demonstrated, that it causes a more copious discharge of urea from the system. He has found, in repeated investigations, that the increase of urea was attended by a great diminution of the urates in the urine, confirming the opinion that urea and uric acid are correlative and vicarious substances. He believes that the operation of the colchicum is through the nervous system.

The cases to which colchicum is most applicable are, according to Dr. G., without doubt, those of the regular disease, without injury of organs. Cases of atonic gout, he remarks, certainly receive less relief from its use, and some of them are so little influenced by it, as by no means to compensate for the low and depressed feelings it often creates. These effects may, however, be much obviated by combining it with warm aromatic tinctures and water, and with the vegetable laxatives, which do not destroy its specific action, but, on the contrary, much promote it.

Our author believes that the most common reason of the failure of colchicum is the unnecessarily large doses in which it is frequently administered.

"If," observes Dr. G., "the disease be permitted to expend its first violence, colchicum may be most safely and effectually used. When the fever has abated, the œdematous swelling of the part established, and the bowels well relieved, colchicum may be used with good effect and perfect safety. A long experience of the medicine now enables me, with great confidence, to recommend to younger practitioners to abate much the amount of the dose they use. I have seen doses of one drachm of the wine or tincture given twice and three times in the day, with no effect on the disease, but with sad disturbance of the patient's constitution; and I have seen the same case led back gently and quickly to health, with doses varying from ten to fifteen minims, after a little time had elapsed, and the fire of the disease was in some degree extinguished."

In concluding his account of the treatment of regular gout, the author remarks:—

"I recommend a perfect holiday to all men who have gone through a fit of gout. It should be passed in good, bracing air, with as much exercise as their feeble state will enable them to take; in order that the lungs may be well expanded, the assimilation of the food be perfected, and a pure and well-oxygenated blood be worked into the organic textures and moving structures of the body. During this time of seclusion, it is of much importance that a light but nourishing diet should be used, and that the bowels should be gently acted upon, so as to relieve the system of any remaining oppression. These purposes may be well accomplished during a residence at some of the fashionable watering-places."

The treatment of irregular gout forms the subject of the eleventh chapter. The author notices the difficulty of laying down any clearer, certain rules to

guide us in these perplexing and too often alarming cases. The free use of opium and powerful stimulants he condemns as often very unnecessary, and then injurious. If time, he remarks, be given, and forbearance practiced, it is wonderful to observe what painful and alarming symptoms will quietly depart, without artificial aid. The immediate seizure is generally, if not always, caused by indigestion, some disturbance of the circulation, or some emotion of the mind; and as these are removed their effects pass away.

"At present, it is a matter of very nice tact and judgment to distinguish the case in which the most heroic remedies must be instantly applied, to sustain the fleeting powers of life, from that in which the advantage of the patient is best consulted by '*expectation*' and forbearance; but, of one thing I feel certain, that medical practitioners will exhibit those qualities which entitle them to confidence, when they do not suffer themselves to be hurried into decision by the clamour of patients and their friends. In general, it may be said that those cases attended with little change in the pulse, even though there be intense suffering, severe vomiting, and signs of much disturbance in the stomach and diaphragm, best bear delay; and that those in which the action of the heart is very depressed, and where there is little acute pain, are the cases which most imperatively call for prompt and effectual aid."

The patient who is frequently affected with metastasis of gout to the head, Dr. G. believes to be seldom free from structural disease of that organ; either earthy formations disturbing the action of the valves, and injuring the function of the coronary arteries, by which means the nutrition of the heart is impeded; or a fatty degeneration of the muscular substance, leading to dilatation of the cavities. The first of these is incurable; but Dr. G. believes that the latter may be removed by putting an end to the secretion of oil globules within the fibres of the muscular structure of the heart, and by restoring that of fibrin. For this purpose, he proposes a diet, composed of little hydrocarbonaceous matter, and furnishing the albuminous elements to the blood; that is, a more animal diet, with pure air, and well-regulated exercise. Colchicum, he considers not to be adapted to such cases. Purgatives, and even laxatives, he condemns; but the free use of chalybeates and tonics, in powerful doses, continued for many months, he enumerates as among our most useful remedies. The gallic acid has also seemed to him, in several cases, of great benefit.

Metastasis to the head is, according to Dr. G., by far the most usual form of misplaced gout.

"It occurs with every degree of suffering. The headaches from which those persons suffer in whom the excretions of urates and urea have, from any cause, been suddenly diminished or temporarily arrested, are only a commencement of this affection, which may well be likened to the effect of a poison. I believe that the substance of the brain itself is the part usually affected in these cases; and my reasons are, that they are never attended with delirium or wandering, but always accompanied by stupor and somnolency; and that, when they terminate in apoplexy, the ruptured vessel is found in the cerebral substance."

In cases of metastasis of gout to the head, Dr. G. condemns large bleedings; a little relief given to the system by a small bleeding, will, he remarks, enable the kidneys to resume their office, and the local symptoms will then safely depart. Colchicum, in minute doses, he considers a most useful remedy, by increasing the secretion of urea. Laxatives are always necessary; and even a cautious use of the more drastic purgatives may be required. Iron and tonics of all kinds must either be forbidden, or used with the utmost vigilance and caution. When the stagnation in the brain is plainly owing to the impaired

power of the heart, Dr. G. can nevertheless conceive that they may be of service, though he has never made use of them.

Much skill is requisite in the management of the diet; but, even in cases of translation to the brain, he is persuaded that it should be chiefly of animal substances.

Whatever may be the estimate which shall be formed of the views of Dr. Gairdner, in relation to the pathology of gout, the work before us will be read with interest. The opinions advanced are evidently the result of close observation; while the practical directions given for the treatment of the paroxysms of the disease, in its more common or regular form, as well as the plan laid down for the prevention and eradication of the gouty diathesis, will command the attention, as we believe they should the confidence, of such as may be called upon frequently to treat a malady which is emphatically the offspring of luxury and vice, combined with the cares and perplexities, the anxieties and disappointments, incident to a highly artificial state of society.

D. F. C.

BIBLIOGRAPHICAL NOTICES.

ART. XVI.—*A Theoretical and Practical Treatise on Human Parturition.* By H. MILLER, M. D. Professor of Obstetrics and the Diseases of Women and Children, in the Medical Department of the University of Louisville. Louisville, 1849: 8vo. pp. 463.

THIS is a very sensible treatise on the theory and practice of obstetrics. The author has presented, in a plain, but clear and vigorous style, a correct exposition of the mechanism of labour, according to the several positions of the fœtus, and an explanation of the efficient and determinative causes of labour, unquestionably accurate in regard to the first, and plausible, though somewhat hypothetical, in regard to the latter. His history of the phenomena attendant upon the several stages of labour is sufficiently minute and accurate, while his directions for the management of its different forms, are precise, and in the main judicious. On a few points, he will be found, it is true, to differ somewhat from the lessons inculcated by authoritative teachers; still, taken as a whole, we believe that the rules laid down by Dr. Miller, for the conduct of labour, may be safely and beneficially carried out in practice.

In regard to the fœtal presentations and positions, the author follows the classification of Duges, but has adopted a nomenclature of his own. This nomenclature differs somewhat from that in general use, but less so than we were led to suppose by the language of the author, when he refers to it in his preface. We are not convinced, however, that it is in any respect preferable to that employed by other teachers of obstetrics. The importance of a uniformity in the classification and nomenclature of the several forms of labour, and the great advantage of the general adoption of precise and comprehensive terms to indicate the presentations and positions of the different parts of the fœtal body in utero, must be admitted. There is no particular objection to the classification and nomenclature recommended by Dr. Miller, but it can scarcely be hoped that they will be received as a "national," much less a universal "standard."

The portion of the work which appears to us the least satisfactory, is that which treats of labours demanding the instrumental delivery of the child. In the chapter (xii.) on "impotent action of the uterus," the circumstances are explained, under which the expulsion of the fœtus by the unaided powers of the uterus is prevented, but in a too general manner; one better adapted for the use of the experienced obstetrician, than for enabling the student and young practitioner to form a safe judgment as to the propriety, in any given case, of resorting to the use of instruments. This important question is dismissed with the following remarks; the general accuracy of which we admit, but object to them as not sufficiently definite—as inculcating only the truism, that instrumental interference should not be too early resorted to, nor too long delayed; but leaving the reader to form his own estimate, as to what constitutes the just medium between the two extremes.

"Looking," says the author, "at the subject in a general light, I would say that *time* is no criterion to govern us. The march of time is not uniform in its effects on labour, any more than it is on the persons of the sex. In the lapse of a given number of hours, some women will be brought into a perilous condition, while others, under similar circumstances, as far as we can judge, will be in no manner of danger. In forming our opinion as to the necessity of artificial delivery, our attention should be directed to the evidences of uterine impotency; in proportion as these thicken, the necessity of delivery becomes more and

more urgent. It is not wise to wait until the urgency is extreme, and in general, the earlier the woman is relieved by delivery, the better, *provided this can be done with facility and safety.* Suppose, for example, the head of the child is presenting, and has ceased to advance, while the uterus has evidently become impotent. Suppose, moreover, the head is within easy reach of the forceps, and can be delivered without risk or additional pain to the mother; what would be the use of waiting until we are driven to the operation? But if delivery be not so easily and safely practicable, prudence requires that it should be deferred until the necessity of it is more pressing. So pressing that, in our opinion, it is better to incur whatever risk the operation may involve than wait longer."

The directions for the application of the forceps are, in general, accurate, and as clear as they can be made without the aid of well-executed wood cuts, which have now become, to a certain extent, essential for the illustration of the text, in all treatises on obstetrics.

The work before us is evidently the production of one well versed in the subject of which it treats; a clear and independent thinker, and one accustomed to communicate in a plain, concise, and vigorous style, his thoughts to others. Though inferior, certainly, to some of the standard treatises in comprehensiveness and fulness of detail, it may nevertheless be studied with profit by those who would learn the theory and practice of obstetrics, and may furnish a useful hint, even to those who are already engaged in the active duties of midwifery. D. F. C.

ART. XVII.—*A Dissertation on the Practice of Medicine, containing an Account of the Causes, Symptoms, and Treatment of Diseases, and adapted to the Use of Physicians and Families.* By TOMLINSON FORT, M. D. Milledgeville, Georgia, 1849: 8vo. pp. 740.

IN his preface, the author of the present dissertation informs us, that, had he not been prevented by sickness, he would have written an introductory chapter, to convince the profession "that the time had arrived when a diffusion of medical knowledge among men was necessary to the continuance of their confidence in the science and its professors; that the decline of that confidence, which is manifest in this day of increasing civilization, has arisen from the vain attempts to make medicine an exclusive property in the hands of those who pursue it as a profession." That in this "vain attempt" is to be sought the cause and success of the empiricism, which, under various forms, pervades the land. That it would be greatly to the credit of medical men, and profitable to the whole profession, to throw open the doors of their science, and, by all practicable means, induce mankind to consider it their duty to obtain some knowledge of it for themselves. And, finally, that this knowledge of the healing art is, or may become necessary to every citizen, inasmuch as "no man can be certain that it will be always in his power to obtain medical advice; for every one is subject to a thousand casualties, which will compel him to rely on his own skill; and this necessity, against which there is no defence, will operate with greater power over the thousands of our best citizens, who are scattered abroad in the country."

We certainly have great cause of regret, in being deprived of the proposed introduction; not that we require any arguments to convince us that the confidence of the community in our profession would be secured, and quackery, in all its forms, most effectually destroyed, were every citizen, male and female, well indoctrinated in physiology, pathology, therapeutics, and clinical medicine. We are fully convinced, also, that such an education would prove, often, of very great value to the heads of families, in the sparsely populated portions of our widely extended country. But we must confess ourselves sorely grieved, in being left in ignorance of the means which our author would recommend for effecting this very desirable "diffusion of medical knowledge" among the community at large.

Our profession cannot certainly be accused of any attempts to close "the

doors of their science" upon any one. Our medical colleges, scattered throughout the length and breadth of the land, exhibit, it must be confessed, a very liberal spirit in their invitations to every one to enter within their walls and be made doctors. But it cannot be expected that "the entire community" will ever be induced, even could they spare the time and means, to become regular students of medicine; and every other attempt to diffuse among the people that degree of medical knowledge which shall be productive of any beneficial results, will be found altogether impracticable. The science and the art of medicine are too extensive, and too difficult to be acquired, for any profitable end, excepting by such as shall devote the whole of their mental powers, and their entire lives, to their study and pursuit. Medicine can never become a popular science. In no profession is a partial and imperfect knowledge of its principles and practice calculated so effectually to mislead or to produce more serious mischief. The "some knowledge" of medicine, which our author considers it the duty of all to obtain, would most unquestionably prove to its possessors a curse instead of a blessing; and in place of forming a barrier to stem the flood of empiricism now inundating our country, would rather be a means of multiplying its advocates, and strengthening its pretensions. The progress of the healing art, and the best interests of those who may have need of its succour, in the hour of sickness and of suffering, demand that its cultivation and practice should be confided to a distinct body of men—the medical profession.

As one of the means of giving to "the science of medicine a wider range in the mental operations of the age," or, in plain language, of teaching every one to know and cure the ills his flesh is heir to, and thus to become his own doctor, the work before us is offered to the public. But we very much fear that the "Dissertation on the Practice of Medicine," of Dr. Fort, will not be found to be one well adapted for the instruction in medical lore, of either physicians or families—for the use of the professional or unprofessional reader.

Without inculcating any very gross errors in either theory or practice, the work presents, certainly, but a very faint and imperfect sketch of the present state of our knowledge in regard to the pathology and therapeutics of the several maladies of which it treats.

The author's descriptions of disease are, in general, loose, vague, imperfect, and confused. It would puzzle, not a little, any individual, medical or non-medical, to form a certain and accurate diagnosis of a case of measles, scarlatina, varicella, hydrocephalus, croup, pertussis, tuberculous consumption, &c. &c., guided solely by the descriptions of these diseases given in the volume before us.

Even when the author affects great minuteness in his detail of the symptoms and progress of a disease, his minuteness, admitting its correctness, is calculated to mislead the unprofessional reader, at least, whenever the malady shall deviate, in any of its phenomena or in its march, from the description given.

The plans of treatment recommended by Dr. Fort are, for the most part, in their general outlines at least, correct. His directions for the administration of remedies, are, nevertheless, often deficient in clearness and precision. The particular circumstances, as well as the succession in which the employment of the individual remedial agents will be found most beneficial; the indications which counterindicate their use; the modifications in the treatment demanded by the varying features of the same or different cases; the proper period for the suspension of active remedies, or the circumstances which may call for a recurrence to their use, are seldom pointed out with sufficient exactness. Occasionally, also, the author's therapeutic directions are conveyed in terms too vague to give any definite instruction to the unprofessional reader, or even to the practitioner.

It is not necessary that we should enter into a detailed examination of the several chapters of the present work. In such an examination we should not have occasion, certainly, invariably to condemn. The pathological portions of the treatise are, it is true, imperfect throughout, and not calculated to convey correct views of the nature of disease. In his therapeutics, the author often exhibits sound judgment, but the value of his practical precepts to the

student, and unprofessional reader, at least, are impaired by the vague manner in which they are too frequently announced.

The work can never become one of authority with the profession, nor do we believe it to be destined to acquire much credit as a popular treatise.

D. F. C.

ART. XVIII.—*Lectures on the Diseases of Infancy and Childhood.* By CHARLES WEST, M. D., Fellow of the Royal College of Physicians, Senior Physician to the Royal Infirmary for Children, Physician-Accoucheur to the Middlesex Hospital, and Lecturer on Midwifery at Saint Bartholomew's Hospital. Philadelphia, Lea & Blanchard, 1850: 8vo. pp. 451.

THESE lectures, the substance of the greater portion of which was addressed to the pupils of the Middlesex Hospital, in the summer of 1847, comprise a very able summary of the pathology and treatment of the leading diseases incident to the periods of infancy and childhood. While the author has availed himself of the labors of those who have cultivated the most successfully this particular department of medical inquiry, the value of his lectures is greatly enhanced by the comparison of the opinions and practice advocated by the more authoritative writers on the diseases of which he treats, with the result of his own observations. These observations were made in the large field presented by the Children's Infirmary of London, which was first thrown open to the author in the year 1839, by the kindness of his friend, Dr. Willis, then physician to that institution; to which office, on his resignation, in 1842, Dr. West succeeded. Very nearly 14,000 children, affected with various diseases, were thus brought under his notice, during the nine years preceding the publication of these lectures in their present form; of the diseases of 600 of these patients, he has kept accurate notes, as well as of the result of 180 dissections of cases in which those diseases terminated fatally.

Every portion of these lectures is marked by a general accuracy of description, and by the soundness of the views set forth in relation to the pathology and therapeutics of the several maladies treated of. The lectures on the diseases of the respiratory apparatus, about one-third of the whole number are particularly excellent, forming one of the fullest and most able accounts of these affections, as they present themselves during infancy and childhood, in the English language. The history of the several forms of phthisis during these periods of existence, with their management, will be read by all with deep interest. The author's account of the diseases of the digestive organs is excellent so far as it goes; but it appears to us that too little space—one-sixth of the course—has been accorded to the pathology and treatment of these very frequent, and certainly very important affections of the earlier periods of existence. The American physician will be disappointed in not meeting with any notice of some of those forms of disease of the alimentary canal, which he will be frequently called upon to treat in children. Notwithstanding the lectures are addressed to the medical student and practitioner of Great Britain, they will, nevertheless, form a useful addition to the library of the American student and physician.

D. F. C.

ART. XIX.—*Clinical Lectures on the Physical Diagnosis of Phthisis.* By RICHARD PAYNE COTTON, M. D. London, 1849: pp. 23.

THESE lectures are republished from the *London Medical Gazette.* They are six in number, and were delivered at the Hospital for Consumption and Diseases of the Chest, by Dr. Cotton, assistant physician to the institution. Without claiming to announce new discoveries, or to propound new laws, in the department of physical diagnosis, they are presented as the result of the lecturer's personal observation and reflection, and they furnish satisfactory

evidence that he is not less accurate as a reasoner, than skilful as an observer. He deserves the credit of having placed a familiar subject in a clearer and broader light than others who have handled it. In method, distinctness, and completeness of analysis, he may rank with his countryman, Walshe; and like him, he seems to have developed these qualities in the best of schools for such cultivation, the school of Paris.

The experienced diagnostician will not, it is true, find much to aid him in these lectures. His difficulties are greatest in cases of phthisis complicated with some other pulmonary disease, in which he is required to form and express an opinion after a single, or it may be two examinations, of the patient. A lecturer cannot unravel such difficulties except by an analysis of individual examples of the sort; he cannot lay down rules which will apply to all of them, because the variety and degree of the complications actually met with are almost infinite. But the simple, or differential, diagnosis of tubercular consumption, that which the student must first of all acquire, may be taught almost axiomatically, and he is the best teacher who presents it in the plainest language, the most concisely, and in such a manner as that a proper succession is observed in the steps to be followed, and an adequate reason perceived for the opinion to which every one of them leads. In these respects, the lectures of Dr Cotton offer an excellent model, and point him out as likely to become a worthy compeer of those gifted men, who are introducing into English medicine a degree of system and accuracy, the want of which in times past has so greatly detracted from its influence and its value. A. S

Art. XX. *Epidemic Cholera—Its History, Causes, Pathology, and Treatment.* By C. B. Coventry, M. D. Professor of Obstetrics and Medical Jurisprudence in the Medical Institution of Geneva College; Professor of Physiology and Medical Jurisprudence in the University of Buffalo. Buffalo, 1849: 12mo. pp. 119.

A Practical Treatise on Asiatic Cholera, which every person should read, as it may be the means of saving the lives of thousands. For the benefit of the public it is issued in Pamphlet form; taken from a new Medical work, now being published on Diseases of the South. By Thompson McGown, M. D. Graduate of Transylvania University; Member of the Lexington Medical Society, and a Practitioner of the South. Philadelphia, 1849: 8vo. pp. 30.

Letters upon Cholera. By Frank A. Ramsey, M. D. Knoxville, Tennessee, 1849: 8vo. pp. 30.

Cholera—Its Causes, Symptoms, and Treatment considered and explained. By I. P. Batchelder, M. D., of New York City. New York, 1849: 12mo. pp. 45.

Lecture on Epidemic Cholera, delivered in the Hall of the Philadelphia College of Medicine, in May 1849, *at the request of the Medical Class.* By Thomas D. Mitchell, M. D. Professor of the Theory and Practice of Medicine in the Philadelphia College of Medicine, and late Professor in the Medical Department of Transylvania University, Lexington, Kentucky. Philadelphia, 1849: 8vo. pp. 22.

The Pathology and Treatment of Asiatic Cholera, so called. By A. L. Cox, M.D. New York, 1849: 12mo. pp. 54.

The Pathology and Treatment of Cholera: with an Appendix, containing his latest Instructions to Planters and Heads of Families, remote from medical advice, in regard to its Prevention and Cure. By Samuel A. Cartwright, M. D. New Orleans, 1849: 8vo. pp. 40.

The above are the titles of a few of the host of publications, to which the recent prevalence of cholera in the United States has given birth. The character and object of these works differ considerably. Those of Drs. McGown, Ramsey, and the appendix to that of Dr. Cartwright, are confessedly written for the instruction of the public, or those remote from medical advice; that of Dr. Mitchell is a lecture delivered to a class of medical students, presenting an outline of the pathology and therapeutics of cholera; the main ob-

ject of that of Dr. Cartwright would appear to be, to enforce the efficacy of his celebrated compound of capsicum, calomel, and camphor, as the remedy in all cases of disease attended with thin, large evacuations from the bowels, of a light colour or destitute of bile, whether cholera, congestive fever, or any other complaint; while those of Drs. Coventry, Batchelder, and Cox, are presented as concise treatises upon the disease, explanatory of its history, causes, nature, and treatment, for the use of the medical student and practitioner. The views set forth in most of them, profess to be the result of extensive observation and experience; and yet, from the whole, it can scarcely be said that we derive one single ray of light to direct us in our investigation of the pathology of a disease which has prevailed over a wider extent of the earth's surface, and has produced, in its several epidemic visitations, a greater amount of mortality than almost any other with which we are acquainted; nor do they present even a full exposition of all the facts which recent observers have recorded, in reference to its morbid anatomy, or the changes observed in the blood and other fluids, as well during life as after death, of those attacked by it.

In the exposition of the predisposing and exciting causes given by the several writers, there is a surprising unanimity. Upon this point, indeed, no important difference of opinion exists among the profession generally; and hence, the leading measures for the prevention of cholera, in communities and individuals, laid down in any one of the publications, is but a repetition, with more or less detail, of that recommended in the others.

In regard, however, to the immediate, or, as it has been termed, the proximate cause, scarcely two of the writers agree.

By Dr. Coventry, the first step in the production of the disease, is a derangement in the functions of the nervous system; a prostration of its energies, preventing those changes in the condition of the blood, and nutritive processes, by which the blood is purified and caloric evolved.

"Carbonic acid is not formed by the union of the carbon with oxygen; heat is not generated; the blood, still charged with carbon, paralyzes the action of the heart, which, in its turn, becomes enfeebled; congestion of the internal organs follows, as in actual asphyxia; the nervous system being also paralyzed, the congested organs are incapable of retaining their contents, and the watery portion of the blood escaping, by transudation, into the intestinal canal, is ejected by vomiting and purging; hence, the discharge; hence, the discolorization from retention of the carbon; hence, the extreme cold, in consequence of heat not being generated, and of the rapid evaporation from the surface. Hence, also, the dark colour, and thickened consistency of the circulating fluid; and hence, too, the reason why injection of saline fluids into the veins, seldom succeeds in restoring the patient, though it may revive him for a time, for it cannot remove the congestion of the capillary system."

According to Dr. Ramsey, cholera consists in a morbid change produced in the blood by the choleraic poison; or, in his own words:—

"The causative agent, whatever it may be, enters the economy; probably by inhalation, or through the lungs; and by impression on the blood causes an alteration of the relations of its constituent parts, and the effect is unhealthy manifestations, proportioned to the degree of such alterations."

The diminished temperature, weakened action of the heart, the vomiting and purging, and the torpidity of the glands, are secondary effects, dependent upon the change in the blood.

"The tendency of certain elements of the blood, and the coincident destruction of the natural relations of the blood constituents, are the only immediate or direct, and therefore, primary effects. These being coincident, may legitimately be considered identical; and the one being obvious, while the other is hidden, the primary effect may be stated to be *a tendency of certain of the blood constituents to escape from the free surfaces offered them by the stomach, bowels, and lungs.*"

Dr. Batchelder teaches, that

"The specific cause or choleraic agent, produces a vehement contraction of the capillaries throughout the whole body, especially those portions of it which belong to animal life. With this constriction of the minute vessels, it also

causes a *relaxation of the pores*, particularly those opening into the stomach and bowels, through which the colourless, serous, and saline constituents of the blood escape into these viscera, and leave the system destitute of materials essential to the performance of vital functions."

In applying this view of the special cause of cholera to the explanation of the symptoms, Dr. B. has presented, certainly—provided we admit the accuracy of all his physiological and pathological data; the validity of one or more of which we should, however, be inclined to dispute—a very excellent and consistent rationale of the various phenomena peculiar to the disease. In reference to these phenomena, he has, unfortunately, made one or two very serious mistakes.

"When the surface of the body," he remarks, "exhibits the dark blue appearance mentioned by writers, and *universally witnessed by all who have seen much of cholera*, the mesenteric veins are seldom much gorged with blood, and *vice versa*, they are generally distended with that fluid, when that appearance is absent. This dark-coloured appearance, although mentioned by writers as a symptom of cholera, is by no means uniform, or, according to the writer's observations, even general; but rather the exception than the rule, and occurs only when the visceral veins are undistended. When absent, the internal veins are gorged; when present, comparatively empty."

We pass over the palpable contradiction between the first and second sentences of the above quotation, as it may have originated in a typographical error; but we must reverse the declaration of the author, that the dark blue appearance of the skin, in confirmed cases of cholera, is the exception rather than the rule. In the second and advanced stages of the disease, we have never known it to be absent—varying, however, in extent and intensity, in different cases; it is almost pathognomonic of the disease; its very rare absence is to be set down as the exception, its presence as the rule. Again, Dr. B. refers to "the shrinking of the cutaneous capillaries which belong to animal life," as "the physical cause" of one of "the prominent symptoms" of cholera, "the *sensation of cold*." Now we have seen much of cholera, but never have witnessed this sensation of cold; on the contrary, in a vast number of cases, we have heard the patients, whose skin, and tongue, and breath were icy cold, complain of a sensation of heat; their constant desire was for cool air, and cold water, and they experienced the greatest comfort from the application of cold water or ice to their surface.

Dr. Mitchell, with commendable honesty, acknowledges his ignorance of the true pathology of the disease.

Dr. Cox advances no theory explanatory of the proximate cause of cholera. The following quotation will explain his views in relation to its pathology.

"The original symptom is nothing more than a discharge of fluid, in immense quantities, from the bowels. In fact, it is a copious hemorrhage of the fluid parts of the circulating mass. That this discharge is derived from the blood-vessels of the intestines is indisputable, when we reflect that the bodies of those who have died with cholera, and have had no partial relief from treatment and drinks, present the extraordinary peculiarity of being without fluid; nothing remains in the small vessels but the thick parts of the blood. Frequently, mere clots or coagula in the larger vessels, and dark, grumous blood, in the small ones.

"This circumstance, which furnishes the true explanation of the disease, accounts for every symptom in the most satisfactory manner."

If Dr. Cox will only demonstrate the cause of this separation and escape of the fluid portion of the blood, he will have achieved the discovery of the proximate cause of cholera; for we believe, with him, that upon this separation and escape of the watery portion of the blood, depend nearly all the leading phenomena of the disease.

Dr. Cartwright's pathology of cholera differs somewhat from the foregoing, as do also his views of the cause of the circulation of the blood through the pulmonary veins, from those ordinarily received.

"The elimination of vital heat is evidently owing to the morbid cause of cholera, whatever it may be, enervating the brain and nerves, as poison does; diminishing the combustion in the lungs, causing a deficient arterialization of

ject of that of Dr. Cartwright would appear to be, to enforce the efficacy of his celebrated compound of capsicum, calomel, and camphor, as the remedy in all cases of disease attended with thin, large evacuations from the bowels, of a light colour or destitute of bile, whether cholera, congestive fever, or any other complaint; while those of Drs. Coventry, Batchelder, and Cox, are presented as concise treatises upon the disease, explanatory of its history, causes, nature, and treatment, for the use of the medical student and practitioner. The views set forth in most of them, profess to be the result of extensive observation and experience; and yet, from the whole, it can scarcely be said that we derive one single ray of light to direct us in our investigation of the pathology of a disease which has prevailed over a wider extent of the earth's surface, and has produced, in its several epidemic visitations, a greater amount of mortality than almost any other with which we are acquainted; nor do they present even a full exposition of all the facts which recent observers have recorded, in reference to its morbid anatomy, or the changes observed in the blood and other fluids, as well during life as after death, of those attacked by it.

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"Carbonic acid is not formed by the union of the carbon with oxygen; heat is not generated; the blood, still charged with carbon, paralyzes the action of the heart, which, in its turn, becomes enfeebled; congestion of the internal organs follows, as in actual asphyxia; the nervous system being also paralyzed, the congested organs are incapable of retaining their contents, and the watery portion of the blood escaping, by transudation, into the intestinal canal, is ejected by vomiting and purging; hence, the discharge; hence, the discolorization from retention of the carbon; hence, the extreme cold, in consequence of heat not being generated, and of the rapid evaporation from the surface. Hence, also, the dark colour, and thickened consistency of the circulating fluid; and hence, too, the reason why injection of saline fluids into the veins, seldom succeeds in restoring the patient, though it may revive him for a time, for it cannot remove the congestion of the capillary system."

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"The causative agent, whatever it may be, enters the economy; probably by inhalation, or through the lungs; and by impression on the blood causes an alteration of the relations of its constituent parts, and the effect is unhealthy manifestations, proportioned to the degree of such alterations."

The diminished temperature, weakened action of the heart, the vomiting and purging, and the torpidity of the glands, are secondary effects, dependent upon the change in the blood.

"The tendency of certain elements of the blood, and the coincident destruction of the natural relations of the blood constituents, are the only immediate or direct, and therefore, primary effects. These being coincident, may legitimately be considered identical; and the one being obvious, while the other is hidden, the primary effect may be stated to be *a tendency of certain of the blood constituents to escape from the free surfaces offered them by the stomach, bowels, and lungs.*"

Dr. Batchelder teaches, that

"The specific cause or choleraic agent, produces a vehement contraction of the capillaries throughout the whole body, especially those portions of it which belong to animal life. With this constriction of the minute vessels, it also

causes a *relaxation of the pores*, particularly those opening into the stomach and bowels, through which the colourless, serous, and saline constituents of the blood escape into these viscera, and leave the system destitute of materials essential to the performance of vital functions."

In applying this view of the special cause of cholera to the explanation of the symptoms, Dr. B. has presented, certainly—provided we admit the accuracy of all his physiological and pathological data; the validity of one or more of which we should, however, be inclined to dispute—a very excellent and consistent rationale of the various phenomena peculiar to the disease. In reference to these phenomena, he has, unfortunately, made one or two very serious mistakes.

"When the surface of the body," he remarks, "exhibits the dark blue appearance mentioned by writers, and *universally witnessed by all who have seen much of cholera*, the mesenteric veins are seldom much gorged with blood, and *vice versa*, they are generally distended with that fluid, when that appearance is absent. This dark-coloured appearance, although mentioned by writers as a symptom of cholera, is by no means uniform, or, according to the writer's observations, even general; but rather the exception than the rule, and occurs only when the visceral veins are undistended. When absent, the internal veins are gorged; when present, comparatively empty."

We pass over the palpable contradiction between the first and second sentences of the above quotation, as it may have originated in a typographical error; but we must reverse the declaration of the author, that the dark blue appearance of the skin, in confirmed cases of cholera, is the exception rather than the rule. In the second and advanced stages of the disease, we have never known it to be absent—varying, however, in extent and intensity, in different cases; it is almost pathognomonic of the disease; its very rare absence is to be set down as the exception, its presence as the rule. Again, Dr. B. refers to "the shrinking of the cutaneous capillaries which belong to animal life," as "the physical cause" of one of "the prominent symptoms" of cholera, "the *sensation of cold*." Now we have seen much of cholera, but never have witnessed this sensation of cold; on the contrary, in a vast number of cases, we have heard the patients, whose skin, and tongue, and breath were icy cold, complain of a sensation of heat; their constant desire was for cool air, and cold water, and they experienced the greatest comfort from the application of cold water or ice to their surface.

Dr. Mitchell, with commendable honesty, acknowledges his ignorance of the true pathology of the disease.

Dr. Cox advances no theory explanatory of the proximate cause of cholera. The following quotation will explain his views in relation to its pathology.

"The original symptom is nothing more than a discharge of fluid, in immense quantities, from the bowels. In fact, it is a copious hemorrhage of the fluid parts of the circulating mass. That this discharge is derived from the blood-vessels of the intestines is indisputable, when we reflect that the bodies of those who have died with cholera, and have had no partial relief from treatment and drinks, present the extraordinary peculiarity of being without fluid; nothing remains in the small vessels but the thick parts of the blood. Frequently, mere clots or coagula in the larger vessels, and dark, grumous blood, in the small ones.

"This circumstance, which furnishes the true explanation of the disease, accounts for every symptom in the most satisfactory manner."

If Dr. Cox will only demonstrate the cause of this separation and escape of the fluid portion of the blood, he will have achieved the discovery of the proximate cause of cholera; for we believe, with him, that upon this separation and escape of the watery portion of the blood, depend nearly all the leading phenomena of the disease.

Dr. Cartwright's pathology of cholera differs somewhat from the foregoing, as do also his views of the cause of the circulation of the blood through the pulmonary veins, from those ordinarily received.

"The elimination of vital heat is evidently owing to the morbid cause of cholera, whatever it may be, enervating the brain and nerves, as poison does; diminishing the combustion in the lungs, causing a deficient arterialization of

the blood, and a diminution of animal heat as a consequence. *It is the caloric given out by the combustion in the lungs, which impels the blood through the pulmonary veins, to the left side of the heart.*"—"When the heat diminishes, as in cholera, the motive power of the *red* blood through the pulmonary veins is diminished also; at length, the pulse ceases to be felt at the wrist, because the blood from the lungs has lost the motive power that impels it into the right side of the heart, and consequently accumulates in the pulmonary arteries, stagnates in the right side of the heart, and causes a congestion in the venous system. The absorbent vessels, and all the hollow organs fall into a spasmodic or irregular action, as a natural effect of the loss of nervous power, the carbonaceous state of the blood, the deficiency of animal heat, and the stimulus of distension, caused by the venous plethora. The venous congestion is so great, that the exhalant arteries cannot pour their contents into the distended venous system, and all the albuminous and watery parts escape, in the shape of rice water, by a kind of filtering, which the loss of tone greatly favours."

The learned author of "A New Medical Treatise on Diseases of the South," thus treats of the pathology of cholera:—

"Be the cause of cholera whatever it may, apparently, the chief primary morbid impression is made on the nervous system, and mainly on the organic and spinal system of nerves, as is evinced by the looseness of the bowels, nausea or vomiting, muscular debility, cramps in the legs or abdomen, &c., the brain usually being but slightly affected. For aught we know, the cholera poison may obtain ingress into the circulation, chiefly by being inhaled into the lungs, and gradually produce a morbid change in the blood, before the nervous symptoms are very manifest. But as the brain is only slightly affected, it appears that we should look much to the organic and spinal systems of nerves, these being so intimately connected, it might be difficult to determine which is the more affected."

While the views entertained by the authors of the several publications before us, in regard to the pathology of cholera, are thus vague, obscure, and discordant, on one point they are in perfect accordance, and on it their opinions are expressed with clearness and precision. And that is, as to the disease, in the great majority of cases, being preceded or ushered in by a diarrhœa; the discharges, at first feculent, assuming more or less quickly, the characteristic rice-water appearance; and that the suppression of this diarrhœa, which is readily effected by opiates and astringents, with a careful attention to diet and regimen, will prevent the accession of the more serious and intractable stage of the disease. It is true, that while some consider this diarrhœa as merely premonitory of an early attack of cholera, others consider it as the disease itself, in its earliest or primary stage. But this is of little importance, if attention be directed to the necessity of immediately arresting it in order to prevent an attack of confirmed cholera. We acknowledge the correctness of the remark made by Dr. Coventry, namely, that

"All persons acquainted with cholera admit, that few diseases are more manageable, or yield more readily to treatment, in its first stage (that of simple diarrhœa). In the second stage, or after vomiting and purging, with or without cramps, have commenced, the result is very doubtful, and in the third, or what is usually termed the stage of collapse, the case is all but hopeless."

It is true that, in private practice, we have lost no case to which we have been called during the second stage, and in hospital practice, but a very small per centage of such cases; there is, nevertheless, much less certainty of a favorable termination of the disease when it has attained its second stage, than when our remedies are directed against the diarrhœa by which the second stage, as described by Dr. Coventry, is so generally preceded. Hence, it cannot be considered a small matter, to insist so much upon the recognition of this primary diarrhœal stage of cholera. We have known physicians who would recognize no case as one of cholera, which did not present the symptoms of approaching collapse, and who, by neglecting the earliest manifestations of the disease, or by treating them with improper or inefficient remedies, failed to prevent the occurrence of an attack of a more formidable and unmanageable character, and, consequently, finding cholera, in their own hands, to be a most fatal

disease, were led to doubt the success of those who, by arresting the disease in its commencement, were enabled to save nine out of every ten of their patients. We concur in the opinion expressed by Dr. Coventry, that to disarm the pestilence of its malignancy, "the first, and most important step is to impress upon the community the necessity of applying for advice during what have usually been termed the premonitory symptoms." And we have little doubt that were patients, who, during the prevalence of epidemic cholera, become attacked with diarrhœa, "impressed with the belief that they then had the disease, they would more readily submit to the necessary confinement and treatment, than if merely told that they had only the premonitory symptoms," which might, or might not, eventuate in an attack of cholera.

From the publications before us, no very important information can be derived in relation to the best treatment of a confirmed case of cholera, in any of its stages. No statistics are given sufficient to enable us to judge of the several plans recommended, nor any statement of the per centage of deaths, which took place among the patients submitted to one or the other, and we know too little of the opportunities enjoyed by the advocates of these plans, and the care with which their observations in relation to their effects have been made, to form any positive conclusion.

Of the propriety of blood-letting the authors of the several works are by no means in accord.

Dr. Coventry advises, if the patient is strong and plethoric, the pulse still full and distinct, the cramp severe, or if there is great oppression in breathing, the feet and legs to be immersed in water, as warm as can be borne, with the addition of mustard and common salt, and from five to sixteen or twenty ounces of blood to be taken from a vein in the arm, the effect produced on the pulse and system generally being carefully watched. He condemns blood-letting when the patient is feeble and delicate, or if the discharges have been profuse, or the fluids of the body have been drained off by long continuance of diarrhœa in the first stage of the disease.

Dr. Batchelder is in favour of bleeding, as a means of overcoming the violent contraction of the capillaries, upon which he supposes cholera to depend, and thus permitting a free circulation of the fluids through them to take place. In the few cases in which it was tried by him, during the epidemic of 1832, the result was favourable.

Dr. Cartwright believes that, "if the vital power be not too much impaired, blood-letting is indicated, to remove the plethora of the venous system, and to accelerate its motion through the lungs. The asthmatic, anxious breathing in cholera, he remarks, as in measles, is often relieved by the lancet, which, by taking off a part of the excess, enables the balance to circulate more readily, by diminishing the plethora in the system of vessels circulating black blood, and thereby removes the difficulty of promoting a healthy perspiration."

Dr. Mitchell has known the lancet to be used in many cases, but never without injury; indeed, the expedient appeared to him to hasten the fatal termination in almost every case.

Dr. Cox remarks that "it will be manifest that venesection and purgatives are both highly injurious under common circumstances."

By Dr. Ramsey and McGown the remedy is not mentioned at all.

There can be little doubt that, under the circumstances noticed by Dr. Coventry, bleeding is a very important remedy in cholera. In the epidemic of 1832, we bled in the early period of the attack, in a large number of cases, and always were satisfied with the effects produced by it. Even in cases in which the abstraction of blood from the arm was not deemed advisable, cups to the stomach, and occasionally along the spine, we found to relieve gastric pain and distress, and often to relieve the vomiting, which in some cases is constant and distressing. During the late epidemic, also, we found the detraction of blood, by the lancet or by cups, in many cases, to be productive of the best effects. It did not appear to us, however, to be so generally indicated as in the epidemic of 1832.

Calomel as a remedy in cholera is noticed in a favourable manner by nearly all the writers. Dr. Coventry gives it in combination with opium and camphor,

throughout every stage of the disease. His dose is a grain every two hours in the first, and every half hour in the second and third stages.

With Dr. Ramsey, calomel is an essential remedy in the second stage of the disease, as an equalizer of the circulation. "The quantity of calomel which is proper," he remarks, "is a matter for the discretion of the attending physician. Generally, during the second stage, a dose relatively large, according to the severity of the purging, vomiting, and cramp, repeated as circumstances may direct, will be found sufficient to the subjugation of these symptoms. If, however, two or three doses fail, the administration of the drug in smaller doses should be commenced."

Calomel to the extent of twenty grains constitutes one of the ingredients in the sweating powders, which Dr. Cartwright recommends as almost a specific in cholera. To trust to calomel alone would, he considers, be unsafe, because in the violent cases, if it acts at all, it cannot act in time; combined with opium, it promises more; but it acts, he thinks, most effectually when given in the manner directed by him.

Dr. Mitchell recommends calomel and opium, ten grains of the former to one of the latter, in the first stage of the disease, and if in the succeeding stages symptoms clearly indicate derangement of the liver and digestive organs, he remarks that he would give calomel freely and often.

According to Dr. Cox, "a small dose of calomel may sometimes be necessary at the conclusion of the treatment, especially when there is a manifest deficiency of the biliary secretion, but never to arrest the disease."

Dr. Batchelder condemns entirely the use of calomel in cholera, while Dr. McGown confines its use to the febrile state, which occasionally ensues after reaction has been brought about.

We have administered the calomel, in large and small doses, in a great number of instances, during the first and second stages of cholera, but always in combination with other remedies; we cannot say, however, that we have found the efficacy of the latter in any degree enhanced by it.

The quinine forms, with Dr. McGown, a prominent remedy in every stage of cholera. He commences with from twelve to fifteen, twenty, or thirty, grains at the very onset of the disease, and repeats it in doses of from eight to ten every three to five hours. Dr. Mitchell thinks it may be worthy of consideration by physicians, residing in miasmatic districts, while Dr. Cartwright considers it a remedy liable to great objection. "It has," he remarks, "been given in New Orleans in doses as high as thirty grains, with two grains of opium." "The success," he adds, "of the quinine practice has not made it popular with the faculty or the public." By the other gentlemen no mention is made of quinine as a remedy in cholera.

By each of the writers before us, with one single exception, Dr. Cartwright, opium is spoken of as a leading and important remedy in the disease. It is given variously combined; by one with camphor and calomel; by another with rhubarb; with sugar of lead by another; and by others with kino, catechu, krameria, &c.

Our own experience has convinced us that our main reliance for the arrest of cholera is to be placed upon opium and astringents. The combination we have usually employed is that of opium, camphor, and acetate of lead; a third of a grain of the first, two-thirds of a grain of the second, and one grain of the latter, to be given every half hour, or every two or three hours, according to the circumstances of each case, the extent and frequency of the serous discharges, and the effects produced by the first doses. We can speak most positively of the efficacy of this treatment when combined with venesection or the application of cups, in the cases in which the employment of the latter is indicated, with sinapisms to the arms and extremities, followed by repeated frictions, by means of flannels dusted with powdered mustard or cayenne pepper, to the surface, and the use of small draughts of iced water, or, what is better, small portions of ice, to appease the intolerable thirst, which marks the second and succeeding stages of the disease. We have occasionally, in broken-down subjects, added a grain or two of capsicum to each dose of the opium, camphor, and acetate of lead, and, we are convinced, with advantage.

By one or more of the writers before us, warm or even hot applications to the surface are recommended. These applications we have invariably found to do harm; they are disagreeable to the patient, and certainly have no effect in arresting the occurrence of collapse, or in producing reaction when this has occurred. Cool air and cold applications to the surface produce always a comfortable sensation, and are more calculated to do good in the advanced stages of the disease than heat applied in either a dry or moist form.

That we may do full justice to Dr. Cartwright, we give his treatment of cholera, in his own words:—

"My general plan of treatment in cholera may be summed up in a few words. It is the sweating plan, which past experience has found to be so successful in most of the malignant and congestive epidemics of former ages. The powder I recommend (capsicum and calomel, āā twenty grs., camphor ten grs., gum Arabic and calcined charcoal, āā grs. fifteen), will generally start a sweat in ten minutes, if timely given; and in ten minutes actually begins the cure of the disease, by making a revulsion to the surface. That revulsion to the surface has only to be supported by diluent drinks. No stimulants, astringents, or opiates are necessary, if a healthy sweat can be brought about. They do harm if they interrupt the sweat, by heating the system too much. But until perspiration takes place, stimulants are all important. Bleeding, cupping, or the application of cold water, is as necessary, in some cases, to bring the system down to the sweating point, as hot applications, mustard plasters, and frictions, are in the cold and torpid cases."

The treatment which approaches the nearest to the one which in our hands has proved the most effectual in arresting the disease, put in practice during the first and second stages of the disease, is that laid down in the essay of Dr. Batchelder. The treatment recommended by Dr. Coventry is likewise a very judicious one, and if early enough resorted to, will, we believe, seldom disappoint the practitioner in its results. D. F. C.

XXI.—*The Treatment of Rheumatic Diseases by Lemon Juice; with Illustrative Cases from Hospital Practice.* By G. Owen Rees, M. D., F. R. S., &c. &c. London, Longman & Co., 1849: pp. 38, 8vo.

The object of this publication is to call the attention of the profession to the beneficial effects produced by the exhibition of lemon juice in rheumatic diseases. Dr. Rees believes that this article is no less, if not more, efficacious than any of the preparations of colchicum, which have for so many years enlisted the confidence of the profession, in acute rheumatic affections, and in this he is sustained by the testimony of several distinguished practitioners, who have employed it at his suggestion. Lemon juice, Dr. Rees says, certainly lowers the pulses of those suffering from acute rheumatism in as marked a degree, and as quickly, as colchicum does, when exhibited in medicinal doses, while the early relief from pain is such as we seldom obtain by the use of the latter remedy. Several cases of rheumatism treated, in Guy's hospital, by lemon juice, he states, recovered with a rapidity almost unprecedented, considering the severity of the symptoms. Other cases, he adds, as might have been expected, though they have gone on satisfactorily to cure, have not shown themselves quite so quickly amenable to the plan of treatment. In such cases, the lemon juice treatment has been adopted with such modifications as the case may have been thought to require. The progress, however, of the disease, as observed even when most obstinate, under the use of this new remedy, will, Mr. R. thinks, be found to bear a very favourable comparison with the history of those cases in which the old plans of treatment have been had recourse to.

The form of rheumatic disease in which the greatest benefit would appear to have been derived from the use of lemon juice, is that of acute rheumatism, and that form of rheumatic affection involving the smaller as well as the larger joints in acute inflammation, and known as rheumatic gout.

In cases of pure gout, in which the inflammation is high, great advantage

has been observed, while in subacute and more chronic forms of the disease the same marked benefit has not been experienced. Neither is it observed, in acute rheumatism, that benefit accrues from continuing this remedy when the inflammatory symptoms have been checked, and debility remains.

In chronic rheumatism, Dr. R. has apparently observed some benefit from the remedy; but lengthened experience alone can determine the question of efficacy in so lingering and capricious a disease.

Dr. Rees gives the details of eight cases of rheumatism treated by this article, which exhibit its effects in a very favourable light, and are certainly calculated to induce a trial of the remedy.

The determination of the quantity of solid matters excreted by the urine during the twenty-four hours is a point of considerable pathological interest, and Dr. R. has been fortunate enough to obtain in two of the cases very exact returns in this respect. By making a calculation founded on the quantity of urine passed during the day, and its specific gravity, he found that in one of these cases the quantity of solid matter discharged increased as the patient improved. In another, however, in which the state of the urine was very carefully noted, this condition did not pertain; but, on the contrary, the solids so excreted diminished in quantity while the patient was becoming rapidly well.

"The amount of urine passed by this girl was remarkably small, and it had an alkaline reaction at the commencement of the disease, which, however, speedily disappeared under the use of the lemon juice.

"As regards the question of cure by the excretion of some materies morbi from the blood, even if we admit this as the mode in which the return to a state of health is brought about, it does not appear reasonable to expect that in all cases we should find the kidneys the excreters of the morbific matter; inasmuch as the skin possesses very different degrees of energy in different persons, and in rheumatic disease its excretory power is called into full action. The skin may thus interfere with the regularity of any law laid down in respect to the state of the urine, as it can excrete not only water and carbonic acid, but also a large amount of solid matters during the day, when in the highly active state observed in rheumatism.

"The use of lemon juice, as a remedial agent, has of late years been almost restricted to its administration as a cure for scurvy. It formerly would seem to have enjoyed some considerable reputation as an antisyphilitic. We learn from *Percival's Works** that the juice of lemons has been found also of great service in certain biliary and stomachic derangements, and, as the experience recorded is not without interest in connection with the present subject, I shall here quote the author's words. After relating some experiments made on gall, by the addition of lemon juice and other acids, he proceeds to express an opinion that the beneficial effect is to be traced to its power of 'sweetening putrid acrimony.' The facts recorded are, however, as may be imagined, more valuable than the theory propounded. Our author proceeds: 'A tablespoonful of the juice of lemons, unmixed with anything, is said by an ingenious writer (Whytt on Nervous Diseases), to have repeatedly proved a certain cure for a palpitation of the heart, after many of the medicines called anti-hysteric had been tried in vain. This conjecture is confirmed by a similar case which Dr. Bisset hath related, of a middle-aged gentleman who had a palpitation of the heart, accompanied with some symptoms of the jaundice, and who was completely cured by drinking every evening weak rum, acidulated with the juice of Seville oranges.'

"Cases are also quoted by Percival, from which it would appear that calculous diseases have been greatly benefitted by the use of lemon juice; so much so, indeed, as to have led to a belief that it possessed lithontriptic properties. Sydenham also recommends lemon juice and manna as a remedy for gravel, and speaks of its great efficacy in his own case. The account of his own sufferings and relief may be found in his Works,† in the chapter 'de mictu sanguineo a calculo renibus impacto.' He there relates how his nephritic affection formed

* Vol. iii. p. 105. I am indebted to my friend Dr. Theophilus Thompson for this and other references.

† Page 522–3; edition published by the Sydenham Society.

the sequel to an attack of gout. The probability that the beneficial effects quoted by the authors cited were produced by lemon juice, is, to a certain extent, increased by the experience we have had in the treatment of rheumatic diseases: stomach derangement, disturbance of the function of the heart, and calculous nephritis, all bearing a relation to the rheumatic and gouty diatheses.

"As regards the theory of the action of lemon juice in the cure of rheumatic and gouty disease, I have but little to say. I recently published the view which I was inclined to take on the subject, but am by no means anxious to place it before the profession as anything but an extremely doubtful matter to my own mind; it being rather to the facts contained in the above cases that I earnestly beg attention.

"Citric acid, the chief ingredient in the juice of the lemon, if considered in the anhydrous state, is composed as follows:—

Carbon - - - - -	4 atoms
Hydrogen - - - - -	2 "
Oxygen - - - - -	4 "

"This shows a great excess of oxygen over and above the quantity required to saturate the hydrogen present, and under such conditions it may be considered probable that, when introduced into the stomach, this excess of oxygen may there be made use of to modify the results of the digestive process. Knowing, then, as we do, that in the class of gouty and rheumatic affections there is a tendency to the introduction of lithic acid into the circulation, in what manner may we suppose this excess of oxygen to assist us? Let us first consider the constitution of lithic acid, and we shall observe the fact, so well known to animal chemists, that its elements may easily be converted into those of urea and carbonic acid, by the addition of water and oxygen. This will be at once apparent from the following diagram:—

1 atom of lithic acid	$C_{10}\ N_4\ H_4\ O_6$
4 atoms of water	$H_4\ O_4$
6 atoms of oxygen	O_6
	$C_{10}\ N_4\ H_8\ O_{16}$

equal to

2 atoms of urea	$C_4\ N_4\ H_8\ O_4$
6 atoms of carbonic acid	$C_6\ O_{12}$
	$C_{10}\ N_4\ H_8\ O_{16}$

"It was reflecting on the exigencies of the case, more especially in reference to the necessity for a supply of oxygen, that the exhibition of lemon juice in gout and rheumatism suggested itself to my mind, and I moreover considered, that probably the small proportion of alkaline citrate present, which, by decomposition during digestion, yields an alkaline carbonate to the blood, might assist in the cure. Whether there be truth or not in this theory matters little, in comparison with the discovery of a remedy, which, I believe, assists in obtaining earlier relief than has heretofore been the case, in a most distressing malady.

"The most marked physiological effect produced by the exhibition of lemon juice is, perhaps, the great diminution in the action of the heart and the lowering of the pulse. The relief from pain is, however, so early obtained, and so much more complete than by other remedies similarly affecting the pulse, that I am disinclined to attribute it entirely to that quality. I was anxious to ascertain whether we should not observe some effect on the pulse by exhibiting the juice to a healthy person, and one of our clinical clerks, Mr. Sanders, immediately volunteered for the experiment. This gentleman took one ounce of the juice three times a day for three days, and carefully noted his pulse, which was naturally full, and 75 in the minute. After five doses, the pulse became much weaker and more compressible, and numbered 70 in the minute—conditions accompanied by a feeling of general depression. On the third day, the pulse became as low as 66, and was very small and compressible. The urine was always acid, and also natural in quantity till the third day, when it in-

creased somewhat; the specific gravity was then 1017, and there was a deficiency of lithic acid.

"It is important to state that the urine has never been rendered alkaline by the administration of lemon juice; in one case, indeed, in which it was alkaline before treatment, it became acid after the juice had been administered. These facts show that its beneficial effects are not attributable to the alkaline citrate contained in it. Had an alkaline condition been produced, then we might have concluded that its action was analogous to that obtained by the exhibition of salts of vegetable acids, such as the acetate and tartrate of potash.

"In order, however, more satisfactorily to determine this question, I evaporated 20 fluidounces of the lemon juice of the apothecary's shop at Guy's Hospital, and incinerated the dried extract. On examining the ash, it proved to contain only 22 grains* of alkaline salts, so that it is not possible to attribute the effects of the lemon juice to the alkaline citrate it contains; the remedy evidently possessing a totally different therapeutical action. In so far, however, as its quantity may be supposed to go, we may regard the alkaline citrate as an advantage. Considering it as a remedy, however, its small proportion is such as almost to reduce the consideration to a par with the notions entertained by the devotees to a whimsical and vulgar absurdity."

Dr. Rees gives the lemon juice in the dose of half an ounce three times a day in camphor mixture.

ART. XXII.—*Report on the Practical Operation of the Law relating to the Importation of Adulterated and Spurious Drugs, Medicines, &c.* By M. J. BAILEY, M. D., Special Examiner of that Class of Merchandise in the United States Customs, at the Port of New York. Read before the New York Academy of Medicine, June 6th, 1849. Published by order of the Academy. New York, 1849: 8vo. pp. 20.

IT will be remembered by our readers, that, at the meeting of the American Medical Association in Baltimore, in May, 1848, Dr. Thomas O. Edwards, a member of Congress, from Ohio, and chairman of the special committee of the House of Representatives, to which was referred the subject of the importation of worthless, adulterated, and misnamed drugs, made a very interesting communication to the Association on this subject, and that this body appointed a committee to prepare and report a memorial to Congress on the subject. Through the influence of the Association and of other influential bodies, and especially by the efficient and philanthropic exertions of Dr. Edwards, a law was enacted to prevent the importation of worthless, adulterated, and misnamed drugs. Dr. Bailey says that, "On the passage of the bill prohibiting the importation of spurious and adulterated drugs, medicines, medicinal preparations, &c., I was requested by the Hon. Thomas O. Edwards, the able and philanthropic chairman of the special committee of the House, to which that important subject had been referred, to note the practical working of the law at the port of New York, (where three-fourths or more of the importations of that class of merchandise are presented for entry,) and furnish, in such manner as might be most agreeable to myself, a report of the same, prior to the next meeting of the National Medical Association, in order that the information therein contained might have the greatest possible circulation throughout the country."

Dr. Bailey, in compliance with this request, improved the leisure moments allowed him apart from his official duties in preparing the communication under notice.

The law took effect at the port of New York, on the 12th of July, 1848, and the following is a list of the more prominent articles of drugs and medicines,

* This ash contained about 2.5 grains of chloride, and also some traces of phosphate, so we may fairly conclude that an ounce of the juice contains less than a grain of alkaline citrate.

with the quantities, and place whence imported, annexed, which Dr. Bailey has, during the months named, rejected under its provisions, to wit:—

"July, 1848,	7,581 lbs.	Rhubarb root,	from Canton.
August,	750 lbs.	Opium,	do. Marseilles.
do.	2,940 lbs.	Jalap root,	do. Tampico.
do.	2,249 lbs.	Rhubarb root,	do. London.
September,	646 lbs.	do. do.	do. do.
do.	1,414 lbs.	Gamboge,	do. do.
do.	545 lbs.	Rhubarb,	do. Hamburg.
do.	1,400 lbs.	Senna,	do. Leghorn.
do.	2,900 lbs.	Spurious Yellow Bark,	do. Bordeaux.
do.	875 lbs.	Rhubarb,	do. Canton.
do.	758 lbs.	Opium,	do. London.
do.	1,783 oz.	Iodine,	do. do.
do.	1,075 lbs.	Rhubarb,	do. Marseilles.
do.	4,275 lbs.	Jalap,	do. Vera Cruz.
October,	788 lbs.	Rhubarb,	do. London.
do.	227 lbs.	Myrrh,	do. do.
do.	13,120 lbs.	Spurious Yellow Bark,	do. Maracaibo.
do.	1,875 lbs.	do. do. do.	do. Bordeaux.
November,	412 lbs.	Myrrh,	do. London.
do.	1,280 oz.	Iodine,	do. Glasgow.
do.	860 lbs.	Opium,	do. Smyrna.
do.	185 lbs.	Rhubarb,	do. London.
December,	156 lbs.	Opium,	do. do.
do.	1,065 lbs.	Myrrh,	do. do.
do.	12,800 lbs.	Spurious Yellow Bark,	do. Santa Martha.
do.	392 lbs.	Jalap,	do. Vera Cruz.
January, 1849,	1,300 lbs.	Pectoral Paste,	do. San Juan.
do.	2,071 lbs.	Rhubarb,	do. London.
do.	3,550 lbs.	Jalap,	do. Havana.
do.	1,930 lbs.	Spurious Bark,	do. Antwerp.
February,	974 lbs.	Rhubarb,	do. London.
do.	1,992 oz.	Iodine,	do. do.
March,	1,104 oz.	Croton Oil,	do. do.
do.	4,894 lbs.	Senna,	do. do.
do.	1,345 lbs.	Spurious Bark,	do. do.
do.	404 lbs.	Opium,	do. do.
do.	1,150 lbs.	Valerian root,	do. Paris.
April,	425 lbs.	Opium,	do. London.
do.	1,273 lbs.	Myrrh,	do. do.
do.	550 lbs.	Jalap,	do. Vera Cruz.
do.	816 lbs.	do.	do. Tampico.
do.	1,450 lbs.	Sarsaparilla,	do. do.
do.	600 lbs.	Spurious Bark,	do. Barranquilla.

"Together with smaller quantities of various articles which have been rejected from time to time, but which it is not necessary to enumerate here—making the entire amount, some 90,000 lbs. of various drugs, &c., which has, up to the present time, been refused."

This long list of itself affords abundant evidence of the value of the law, but Dr. Bailey brings forward many other statements and considerations in its support, for which we must refer to his report.

The prevention of the importation of adulterated drugs is but one step in the great reform which is needed, and indeed will be of small value unless some means be adopted to prevent *home adulterations*.

On this subject, Dr. Bailey remarks:—

"The strongest, and almost the only argument raised against the passage of the bill when before Congress, was, that it would be 'offering a premium on home adulterations.' A distinguished senator, who took this view of the case, admitted that he approved of the *principle* of the bill, and should vote for it, but

maintained that the effect would be as he had stated. The friends of the measure pledged themselves to take care of our own people, if Congress would take care of the unprincipled manufacturers, speculators, and dealers abroad; and it is devoutly to be hoped that they will faithfully and fearlessly redeem their pledges at any sacrifice of time, watchfulness, and if needs be, money.

"I, for one, never looked upon the passage of the law in any other light than as the *first important step* towards the great reform so long, and so much needed; and *the profession must only so consider it.* Much yet remains to be done; something more than simple *professions* of friendship to the measure must now be brought into requisition. To suppose that we have none among us engaged, or who *will* engage, in the preparation and sale of spurious and adulterated medicines, is to place a higher estimate upon the conscientious scruples of that portion of our speculating and trading community with whom the almighty dollar is paramount to all other considerations, moral, if not divine, than, from my somewhat extensive observations, I am willing to concede. Even at this early day, the fraudulent work of their hands is but too visible. Within the last month or two, sulphate of quinine, in considerable quantities, bearing the label of Rosengarten & Denis, Philadelphia, has been found in market adulterated to the extent of some twenty or twenty-five per cent. The same may be said of quinine bearing the label of the London Alkaloid Company, London—likewise that bearing the label of Pelletier, Delondre & Lévailant, Paris.

"Now, these frauds were perpetrated by our own people, or among our own people, and after the article, too, had come into the hands of the purchaser. The manufacturers sent them forth pure, and had nothing to do with the sophistication. Each of the firms named stands too high, and deservedly so, to warrant even a suspicion of such unpardonable baseness.

"The materials used for the adulteration of the quinine were found, on analysis, to be *mannite* and *sulphate of barytes*, in about equal weights. The latter article has long been used for this purpose, but not until lately has *mannite* been detected in the sulphate of quinine. It seems to have been ingeniously substituted for salicine, and a somewhat similar substance prepared from the poplar bark; which articles have heretofore been extensively used for like purposes.

"The ingenuity consists in the fact that it is much more difficult to detect the adulterations, when effected by the admixture of *mannite*, than when by the admixture of salicine, &c., while the former can be furnished for less than one-fourth of the latter.

"I have likewise procured, and have now in my possession, a sample of French sulphate of morphine, adulterated by the admixture of some thirty per cent. of *amygdaline*, an article which, in this combination, defies all the ordinary tests for its detection; and which, like the mannite in the quinine above mentioned, can only be found and distinctly characterized in the mother water after the solution and re-crystallization of the true saline portion of the sophisticated compound.

"Some other important medicinal preparations have been spoken of as having been found worthy also to be classed with 'home adulterations;' but, as I have, up to the present time, only been able to obtain samples of impure sulphate of quinine, and of sulphate of morphine, I am in hopes that the opinion expressed relative to the other articles may prove incorrect. Should I, however, find the facts and the particulars as they have been stated to me, when I receive the samples which have been promised, I shall make them the subject of a communication for some one of our medical journals; as I feel that every fraud of the kind should be promptly and fearlessly placed before the public in a manner best calculated to command the attention of the profession generally throughout the country.

"The question now very naturally arises, how comes this new method of sophistication, and why has this heretofore foreign practice been recently transferred to our shores? I reply, that I have good reason to believe that we have at present those among us from abroad, who have so long been engaged in this particular line of business that they have become perfect adepts in this base and deceptive art. For some years past, an extensive chemical establishment has been in operation at Brussels, in Belgium, built up at great expense and

care, and expressly designed for the manufacture on a large scale of imitations of all the most important foreign chemical preparations used in medicine; while, at the same time, an agent was travelling in this country making sales, and soliciting orders in all the principal towns on our seaboard. This personage is no stranger to me, as I had to examine and pass his murderous wares through the custom house, in large quantities, until Congress, in enacting the present righteous sanitary measure, gave me the power to reject them. The articles were prepared and put up with consummate skill and neatness; and the imitation was so perfect, that it was impossible for the unsuspecting purchaser to distinguish them from the genuine, notwithstanding that in some instances they did not contain over five per cent. of the substance represented by the label. The only *Christian* act that, as far as I am aware, the agent performed while among us, was to sound the alarm in season; for, since the law went into effect at this port, not a single package from that establishment has been presented for entry; but I regret to say that, if I am correctly informed, one, if not more, of the persons formerly connected with the Brussels' firm, are now in this country, engaged, to some extent, in the same iniquitous business; hence the ingenious adulterations before spoken of. I imagine, however, from certain proceedings which have been instituted, that their career among us will not be of long duration.

"Thus it will be seen that, as far as sophisticated chemical and medicinal preparations are concerned, we have now but little to fear from the foreign manufacturer and speculator, while we have *increased* cause for unceasing vigilance at home, not only as respects the finer preparations, but also that almost equally important class of medicines known to the trade as crude drugs, to wit, opium, barks, roots, medicinal gums, &c. &c., whether in a natural or powdered state; and while each and every article requires at all times the particular attention and scrutiny of the dispensing apothecary and physician, I will here remark, that the article sold and purchased under the entirely too comprehensive name of *Peruvian bark*, requires, in my opinion, much more attention than it has heretofore received either from the apothecary or the profession. It will be seen, by the statement submitted, that the quantity of spurious and worthless cinchona barks which I have thus far rejected, amounts altogether to some thirty-four thousand pounds; and why have I rejected it? Simply because the article containing none, or but a trace of the natural alkaloids of the *true* barks, and consequently possessing no febrifuge properties, is of no more value as a medicine than any other moderately bitter vegetable substance, while, at the same time, it is not only unsafe and improper, but, on account of the large excess of woody fibre it contains, decidedly dangerous to be administered in cases where the genuine bark in substance is called for.

"The several barks here alluded to, although differing in physical appearance, are those generally known in the trade as the red and yellow Maracaibo and Carthagena barks; and, as they resemble the true officinal barks in colour, they have long been used in a powdered state for the purpose of adulterating those barks, or sold to the unsuspecting as the genuine article. This fact shows very clearly why it has long been almost impossible to find on sale in the country, or even in any of our minor drug and apothecary establishments in town, one pound of the red or yellow cinchona bark of the requisite strength and purity; or, in other words, that will afford, on analysis, a per centage of alkaloids corresponding with that produced by the genuine barks. Some samples that have been obtained afforded neither quinine nor cinchonine in any perceptible quantity!! Others less than one-fourth part of the alkaloids found in the true and pure barks; and so upward, according to the extent of the adulteration. From the quality of samples that have been forwarded to me from a distance, I am satisfied that the country is filled with such base mixtures and worthless trash; and it will take some time, with all the watchfulness that the profession can exercise, to get rid of the evil; an evil that must be deeply felt in those sections where the peculiar type of their fevers calls for an almost constant use of the cinchona in one form or another.

"In view of these facts, I have from the first invariably refused to admit these spurious barks, notwithstanding my refusal has subjected me from interested

parties to unqualified denunciations and reiterated threats of vengeance, even to expulsion from my post, doubtless to make room for some one of more easy medical virtue. The rejection of no other article of drugs has excited so much indignation; and I regret to remark that the dishonest and unpardonable traffic is held on to by some of our speculating traders with a tenacity truly deplorable; but when I say that the spurious barks cost, delivered in this market, on an average, only some *six cents* a pound, while the genuine costs *eighty* cents, it is not difficult to fathom the cause of these ebullitions of wrath so profusely showered upon me. I shall continue, however, *fearlessly* to do my duty in carrying out the intent of the law, though the heavens fall and I fall with them."

The public, more even than the profession, will be under infinite obligations to Dr. Bailey if he will persist in this course.

The reader will find, in the very able and important report of Dr. Bailey, other statements of interest relating to this subject. We are happy to say that the American Medical Association, at its last meeting, in Boston, appointed a committee of two from each State to note all the facts that come to their knowledge with regard to the adulteration and sophistication of drugs, medicines, chemicals, &c., and to report them at the next annual meeting.

ART. XXIII.—*The Dispensatory of the United States of America.* By GEORGE B. WOOD, M. D., Professor of Materia Medica and Pharmacy in the University of Pennsylvania, &c. &c., and FRANKLIN BACHE, Professor of Chemistry in Jefferson Medical College of Philadelphia. Eighth edition, carefully revised. Philadelphia, Grigg, Elliot & Co., 1849: 8vo. pp. 1380.

WE have so often, on the appearance of the successive editions of this work, expressed the great value we attach to it, and the whole profession are now so well acquainted with its merits, that it is sufficient to announce the issue of a new edition, and to say that the authors have made all the revision and additions which the progress of the science has required. This work is indispensable to every American practitioner and apothecary.

ART. XXIV.—*A Dictionary of Dental Science, Biography, and Medical Terminology.* By CHAPIN A. HARRIS, M. D., D. D. S., Professor of the Principles and Practice of Dental Surgery in the Baltimore College, &c. &c. Philadelphia, Lindsay & Blakiston, 1849: 8vo. pp. 780.

THIS handsomely "got up" volume contains, in a compendious and very convenient form, much valuable information for dentists, and we recommend it as a very useful work to those engaged in that branch of the profession.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Transplantation of Testicles.*—In *Müller's Archives* is a most interesting paper with this title, by Professor Berthold, of Gottingen:—

A series of comparative experiments were made by him: he castrated six young cocks, two and three months old, leaving the wattles, combs, and spurs untouched.

From two of them (*a* and *d*), he removed both testicles. Thenceforth they took on the nature of capons, fighting very seldom and feebly, and giving the well-known monotonous capon crow. Their combs and wattles were pale, and little developed, and the head remained small. About five months after, they were killed; a small scar occupied the place of each testicle, and the seminal duct had degenerated to a mere thread.

From two others (*b* and *e*), only one testicle was removed, the other left in the belly. In two others (*c* and *f*), both testicles were excised; but one belonging to *c* was transplanted into the belly of *f*; and, *vice versâ*, one of its testicles transplanted into *c*, thrust amongst the bowels, and left there.

All four retained the characters of uncastrated fowls; they crowed lustily, frequently fought with each other, and with other young cocks, and exhibited the ordinary inclination for the hens. Their combs and wattles developed like those of others.

The cock *b* was killed two months after; its single testicle was of the ordinary place, but had hypertrophied, and, on section, a white fluid exuded, which contained cells, but no spermatozoa.

On the same day, the remaining three had their well developed comb and wattles excised. The cock *e*, at the same time, was deprived of the remaining testicle; and *c* and *f* examined in the ordinary situation in vain for their transplanted organ.

The now fully castrated *b* never grew comb or wattles; it ceased to concern itself about the hens, and fought no more with its own sex: *c* and *f*, however, reproduced both comb and wattles, and preserved their ordinary chivalrous demeanour. They were killed six months after the transplantation. In *c*, the testicle was found behind the colon and between the ends of the cœca. In *f* it was nearer their middle, but otherwise in the same situation. They were of large size, and received large branches of the mesenteric vessels, which passed towards them, entered, and then took the ordinary course, in relation to their seminal tubes. On incising them, a normal seminal fluid exuded with the ordinary cells and spermatozoa.

The author concludes:—

1. That the testicles are transplantable, and reunite with living tissues, after

their union from the body, not only at their ordinary site, but in an abnormal situation.

2. Like the grafted tree, the organ on this new place still preserves its specific properties, and secretes its specific fluid.

3. It is well known that, after division, a reunion of nerves restores sensation and movement. And it follows, from these experiments, that, as the reunion could not have been one of those originally divided, there are no *specific* seminal nerves; that nerves only are requisite—a strong, nay, almost a fatal objection to the theory that would constitute the sympathetic a *trophic* nerve, or nerve in itself, specifically organized with reference to nutrition.

4. The consensual and antagonistic relations of the life of the individual and the species, seen from puberty to old age, are continued in spite of the separation of the testicles from their ordinary place and nerves, and their removal to another part of the body. These animals were, in all respects, veritable *males*. It would thence follow, that the *consent* in question results from the productive relation of the testicle; that is, through the operation of its secreted fluid immediately upon the blood, and through a corresponding operation of the blood upon the general organism. In this, no doubt, the nervous system takes an important part. These experiments are most interesting, and fully bear out the author's deductions; but the first must be limited to the animals in question, or, at least, must not be hastily extended to higher organizations or older animals. This, however, in no degree impairs the physiological conclusions set forth by the author.

Still, however, the real question that science perpetually asks with a sigh, concerning all secretions, is as undecided as ever. "Why does the testicle secrete semen?"—we can as little answer as ever. Nay, more, let us recollect an important and much more immediate step in the process is wanting—the great agent is unknown.

For how, from these instances, can we determine whether the union of nerves did or did not precede the resumption of secretion? or, let us say, rather, in such young animals, the *perfection* of this process? Yet an answer to this question would be an important addition to our present knowledge.—*Medical Times*, July 21, 1849.

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2. *On the Minute Anatomy of the Sudorific Organs.* By G. Rainey, Demonstrator of Anatomy in St. Thomas' Hospital. (*Proceedings of Royal Med. and Chirurg. Society*, June 22, 1849.)—The author observes that the epidermis is composed of two very distinct layers—a superficial and a deep layer; the former consisting entirely of epidermic scales, whilst the latter is made up wholly of epidermic cells, excepting where this layer is perforated by the sudoriferous ducts. These layers are distinguishable from one another by the dark colour of the deeper layer appearing to present an undulating border. The fact of only the cells being in one layer, and the scales in another, he observes, is contrary to the opinion generally entertained, that the epidermic cells, produced at the inferior part of this layer, become gradually and progressively changed into epidermic scales, in proportion as they approach the surface. It also renders the explanation of the cause of the spiral course of the sudoriferous ducts more simple; for, as in this layer the epidermic scales undergo no change in their structure, and but very little in their dimensions, the duct, being built up of these scales, must remain the same through the entire thickness of this layer, as when it first entered it. In the superficial layer of the epidermis, the sudoriferous ducts are composed entirely of epidermic scales, so placed that the long diameter of each is parallel with the axis of that part of the passage into which it enters. This part of a duct is destitute of membranous parietes, being merely a passage between epidermic scales. In the deep layer of the epidermis, the sudoriferous ducts are situated above, between flattened epidermic scales, with their long axis placed as before observed; and below, between epidermic cells in different states of development. Now, as some of the lowest of these cells are so imperfectly formed as scarcely to have the character of cells, it must follow that the part of the passage which is situated between such cells cannot have its parietes well defined; and there must be a part in every duct (where

the cells forming it are just coming into existence) so imperfect, that the sweat, in entering it, will pass through little more than a layer of blastema. It is for this reason that the most inferior part of a sudoriferous duct becomes so indistinct, that its termination in the dermic portion cannot be distinctly made out; and it is in this respect that all the delineations of these ducts which the author has seen are incorrect, and convey an erroneous idea of their exact structure. The parietes of these ducts are represented as passing continuously from the dermis into the epidermis, the tube at this part being made to have the same diameter as elsewhere; whilst the fact is that the lower portion of the epidermic part is conical, and narrowest below, being shaped like the end of a cork-screw; and the upper part of the dermic portion of the duct is rather conical also, but its base is above. The part of a duct which is situated between the cutaneous papillæ, contrary to what is generally stated, is, in the place of being straight, very much curved—this being the part in which it gets its spiral form. The dermic portion of the duct is continued from the gland, in a flexuous course, to the dermis, where it terminates by the membrane of which it is formed becoming continuous with the basement membrane of the papillæ. It is lined by a layer of epidermic cells, which gets gradually indistinct towards the gland. Respecting the spiral and conical form of the sudoriferous ducts, it is observed that this can only be acquired in the deep layer of the epidermis, since, in the superficial layer, the scales of which they are built up undergo little or no change after they have once been protruded into it, and the dermic portion of the ducts is totally of a different structure from the epidermic. The form which the ducts take in this layer is attributed to the changes which the cells here undergo, during their transformation from mere nuclei into perfect cells, and their subsequent conversion into scales; these changes being confined entirely to the deep layer of the epidermis. The ducts here become conical by the cells which bound them becoming more and more flattened, vertically, in proportion as they become pressed upwards, the space between them gradually increasing as they acquire the form of scales; besides, this part of a duct is situated in a conical space between the papillæ, where, at its inferior parts, the epidermic cells are much more crowded together than at its upper part. This relative difference between the number of cells, and the space containing them, would allow of their being more easily separated by the secretion passing between them, above than below. Respecting the spiral form, the increase in the dimensions of the epidermic cells during their growth from nuclei to perfect cells, and their subsequent flattening and conversion into epidermic scales, would have a tendency so to alter the thickness of this stratum of the epidermis as to throw the passages between its cells into a more or less zigzag form, as the changes which take place during the formation of cuticle, as well as during that of other structures, do not proceed with perfect uniformity, but are doubtless more active at one period, or in one state of the system, than in another. The author remarks that it is probable the laminated form of the nails, the concentric osseous layers around the Haversian canals, and the length of the coils of the sudoriferous ducts, are the result of certain alternations of activity and repose of the processes by which they are formed. As there are no other glands in the skin of the hands and the feet, the author considers the sweat glands as those which furnish the oily or sebaceous matter with which these parts are anointed; and in the place of considering the sweat as an increase of the vapour, which is at all times given off from the surface as the insensible perspiration, he regards it as an increased secretion of these sebaceous glands; these glands being, in their less active state, sebaceous, and in their more active one, sweat glands. This must be the case in the hands and feet. The vapour, which is exhaled at all times from the skin whilst in its normal state, he regards as the fluid in which the solid material of the cuticle was dissolved, in order that it might be in a fit state to pass through the coat of the capillaries: having become separated from the solid component of the epidermic blastema during the production of epidermic cells, and having penetrated the scaly layer of the cuticle, it would arrive at the surface in a minute state of division: the fluid part of the sebaceous secretion would doubtless form a part of this vapour.—*Lond. Med. Gaz.*, July 20, 1849.

3. *Function of the Cerebellum.*—R. Dunn, Esq., reported to the Royal Medical and Chirurgical Society (March 13, 1849), an interesting case of apoplexy of the cerebellum bearing upon this disputed point.

The patient was a man, fifty-two years of age, whose sight had for some years been much impaired, from an amaurotic affection. The author was first called to attend him in June, 1843, when he was suffering from cephaloma and febrile disturbance. This attack left his sight more impaired. About two years ago, he became unfortunate in business, and from that time his mind was weak and excitable. On the last day of April, 1848, he was seized, during the night, with sickness and faintness, and getting out of bed, fell, as it was thought, in a fainting fit. The author found him in a low, exhausted state, and cold, but complaining of pain, heat, and uneasiness in the back part of his head. The latter symptoms continued for some days. There was no paralysis, but his mind was weaker and more confused than before, and his emotional excitability increased. Early in May, his wife mentioned that he had become subject to a constant desire for sexual intercourse; that his conduct in this respect was very different from what it had been before his late attack. By the advice of the author, he left home for about three weeks, without his wife. On his return, the desire of sexual intercourse was abated, and from this time was gradually lost. There was now observed an unsteadiness of gait, which increased, and for some time before his death was attended by weakness and stiffness of the left leg and foot. On the 6th of September, he was seized with an apoplectic attack, and died in less than four hours. After death, the vessels on the surface of the brain were found turgid. The convolutions of the brain were shrunken, deficient in firmness, and of a dingy-yellow colour. The optic nerves, shrunken and of a dingy colour, were, together with the substance of the brain around them, in the cerebral part of their course, softened. The whole region of the mesocephale had an unhealthy aspect. The interior of the right hemisphere of the cerebellum was a softened, pulpy mass, in the midst of which was an apoplectic clot of the size of a pullet's egg. The softening extended inwardly, beyond the centre of the median lobe, implicating the fibrous strands of the middle and inferior planes; and outwardly, near to the surface of the hemisphere. The whole arterial system of the brain presented the diseased condition which results from cartilaginous and osseous deposit between the coats of the vessels. This state was remarkably apparent in the vertebral arteries, especially in the cerebellar branch, from which the hemorrhage appeared to have taken place. The author regards this state of the vessels as the primary cause of disease. He believes that the first attack in April was of the same nature as the fatal seizure. Around the first apoplectic clot, inflammation, he thinks, was set up in the cerebellum, and this terminated in disorganization. To the inflammatory state of the cerebellum he refers the exaltation of the sexual propensity; to the stage of disorganization, the depression of that feeling, and the disturbance of the powers of locomotion—namely, the tottering gait, from defective power of co-ordination, ending in a weak and stiffened condition of the left leg. He refers to another similar case which had come under his observation. He points out that the median lobe of the cerebellum is a primitive and independent part, and argues that it is the sensory ganglion of the sexual instinct, and belongs to the same category as the optic, olfactory, and auditory ganglia; while he thinks the two cases he has noticed afford pathological proof that another office of the cerebellum is that of a regulator and co-ordinator of the muscular actions, especially of those subservient to locomotion, and to the maintenance of the equilibrium of the body.

In the discussion which followed the reading of this case, Dr. Marshall Hall and Prof. Owen denied that the cerebellum was the seat of sexual instinct, while Dr. Carpenter sustained that view.—*Lancet*, March 24th, 1849.

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4. *On the Power to repair Damages sustained by Injury, and to Reproduce Lost Parts.*—Mr. Paget, in his extremely interesting lectures delivered before the Royal College of Surgeons, makes the following remarks on this subject:—

"The power to repair the damages sustained by injury, and to reproduce lost parts, appears to belong, in some measure, to all bodies that have definite form

and construction. It is not an exclusive property of living beings; for even crystals will repair themselves when, after pieces have been broken from them, they are placed in the same conditions in which they were first formed. I know not what amount of mutual illustration, if any, the repair of crystals and living bodies may afford; but, in any case, we may trace here something like an universal property of bodies that are naturally and orderly constructed; all, in favourable circumstances, can repair at least some of the damages to which they are liable from the violence of external forces.

"But, to speak only of the repair and reproduction that occur in the several orders of the animal kingdom; among these they exist in singularly different degrees, and in such as can be only partially included in rules or general expressions. The general statement sometimes made, that the reparative power in each species bears an inverse ratio to its position in the scale of animal life, is certainly not proved; and many instances are contrary to it, such as the great reparative power possessed by the triton and other lizards, and the apparently complete absence of it in the perfect insects. Rather, the general rule which we may expect to find true, and for which there is already much evidence, may be, that the reparative power bears an inverse proportion to the amount of germ-power consumed in the development and growth of the individual, and in its maintenance in the perfect state.

"Our ideas of the consumption of power in the organization of matter, are, perhaps unavoidably, very vague; yet are there facts enough to prove that the power which can issue from the mysterious properties of a germ is limited; that it is not ever communicated to an indefinite quantity of matter; and there are enough to justify the hypothesis, that the germ power, thus limited, is in some measure consumed in the development of every new structure, and, in a less measure, in the growth and maintenance of those already formed. The instances to which I shall refer are explicable on this hypothesis, and are, therefore, evidences of its probability.

"First, then, it appears constantly true that the reparative power is greater in all parts of the young than of the older individuals of all species. Even when we compare individuals that have all attained their highest development and growth, this rule seems to be true. We know it from general observations of the results of similar injuries and diseases in persons of different ages; numerous as the exceptions may be, the general rule seems true. And it is yet more evidently proved in the case of some lower animals. Spallanzani mentions it expressly in regard to the reproduction of the tail of the tadpole. The quickness with which the work of reproduction is both begun and perfected, was always, in his experiments, in an inverse ratio to the age of the tadpole. He says the same for the reproduction of the legs of salamanders, and it is only in young frogs and toads that any reproduction of the limbs will take place. So, too, in experiments on the repair of fractures, the union of tendons and the like, in the Mammalia; one may see abundant evidence that the vigour and celerity of the process are in an inverse proportion to the animal's age. There is, indeed, some reason to believe that, in the very early period of embryonic life, a true reproduction of parts of limbs may take place, even in the human species; for (not to speak of the possibility that supernumerary members may sometimes have been formed in consequence of accidental fission of the budding limbs of the embryo), there are some cases in which fingers are found on the stumps of arms in such circumstances as justify the belief that, after a limb had been accidentally amputated in the uterus, these had been produced on its remaining portion.

"All these facts agree well with the belief that the germ-power is gradually diminished in the acts of organizing matter for the maintenance of the body; and the difference between the reparative power in children and that in adults appears so much greater than the difference in adults of different ages, that it is probable the germ-power is more diminished by growth than by mere maintenance.

"However this may be, it seems certain that the capacity for the repair or reproduction of injured parts is much more diminished by development than by growth or maintenance of the body; *i. e.*, much more by those transforma-

3. *Function of the Cerebellum.*—R. Dunn, Esq., reported to the Royal Medical and Chirurgical Society (March 13, 1849), an interesting case of apoplexy of the cerebellum bearing upon this disputed point.

The patient was a man, fifty-two years of age, whose sight had for some years been much impaired, from an amaurotic affection. The author was first called to attend him in June, 1843, when he was suffering from cephaloma and febrile disturbance. This attack left his sight more impaired. About two years ago, he became unfortunate in business, and from that time his mind was weak and excitable. On the last day of April, 1848, he was seized, during the night, with sickness and faintness, and getting out of bed, fell, as it was thought, in a fainting fit. The author found him in a low, exhausted state, and cold, but complaining of pain, heat, and uneasiness in the back part of his head. The latter symptoms continued for some days. There was no paralysis, but his mind was weaker and more confused than before, and his emotional excitability increased. Early in May, his wife mentioned that he had become subject to a constant desire for sexual intercourse; that his conduct in this respect was very different from what it had been before his late attack. By the advice of the author, he left home for about three weeks, without his wife. On his return, the desire of sexual intercourse was abated, and from this time was gradually lost. There was now observed an unsteadiness of gait, which increased, and for some time before his death was attended by weakness and stiffness of the left leg and foot. On the 6th of September, he was seized with an apoplectic attack, and died in less than four hours. After death, the vessels on the surface of the brain were found turgid. The convolutions of the brain were shrunken, deficient in firmness, and of a dingy-yellow colour. The optic nerves, shrunken and of a dingy colour, were, together with the substance of the brain around them, in the cerebral part of their course, softened. The whole region of the mesocephale had an unhealthy aspect. The interior of the right hemisphere of the cerebellum was a softened, pulpy mass, in the midst of which was an apoplectic clot of the size of a pullet's egg. The softening extended inwardly, beyond the centre of the median lobe, implicating the fibrous strands of the middle and inferior planes; and outwardly, near to the surface of the hemisphere. The whole arterial system of the brain presented the diseased condition which results from cartilaginous and osseous deposit between the coats of the vessels. This state was remarkably apparent in the vertebral arteries, especially in the cerebellar branch, from which the hemorrhage appeared to have taken place. The author regards this state of the vessels as the primary cause of disease. He believes that the first attack in April was of the same nature as the fatal seizure. Around the first apoplectic clot, inflammation, he thinks, was set up in the cerebellum, and this terminated in disorganization. To the inflammatory state of the cerebellum he refers the exaltation of the sexual propensity; to the stage of disorganization, the depression of that feeling, and the disturbance of the powers of locomotion—namely, the tottering gait, from defective power of co-ordination, ending in a weak and stiffened condition of the left leg. He refers to another similar case which had come under his observation. He points out that the median lobe of the cerebellum is a primitive and independent part, and argues that it is the sensory ganglion of the sexual instinct, and belongs to the same category as the optic, olfactory, and auditory ganglia; while he thinks the two cases he has noticed afford pathological proof that another office of the cerebellum is that of a regulator and co-ordinator of the muscular actions, especially of those subservient to locomotion, and to the maintenance of the equilibrium of the body.

In the discussion which followed the reading of this case, Dr. Marshall Hall and Prof. Owen denied that the cerebellum was the seat of sexual instinct, while Dr. Carpenter sustained that view.—*Lancet*, March 24th, 1849.

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4. *On the Power to repair Damages sustained by Injury, and to Reproduce Lost Parts.*—Mr. Paget, in his extremely interesting lectures delivered before the Royal College of Surgeons, makes the following remarks on this subject:—

"The power to repair the damages sustained by injury, and to reproduce lost parts, appears to belong, in some measure, to all bodies that have definite form

and construction. It is not an exclusive property of living beings; for even crystals will repair themselves when, after pieces have been broken from them, they are placed in the same conditions in which they were first formed. I know not what amount of mutual illustration, if any, the repair of crystals and living bodies may afford; but, in any case, we may trace here something like an universal property of bodies that are naturally and orderly constructed; all, in favourable circumstances, can repair at least some of the damages to which they are liable from the violence of external forces.

"But, to speak only of the repair and reproduction that occur in the several orders of the animal kingdom; among these they exist in singularly different degrees, and in such as can be only partially included in rules or general expressions. The general statement sometimes made, that the reparative power in each species bears an inverse ratio to its position in the scale of animal life, is certainly not proved; and many instances are contrary to it, such as the great reparative power possessed by the triton and other lizards, and the apparently complete absence of it in the perfect insects. Rather, the general rule which we may expect to find true, and for which there is already much evidence, may be, that the reparative power bears an inverse proportion to the amount of germ-power consumed in the development and growth of the individual, and in its maintenance in the perfect state.

"Our ideas of the consumption of power in the organization of matter, are, perhaps unavoidably, very vague; yet are there facts enough to prove that the power which can issue from the mysterious properties of a germ is limited; that it is not ever communicated to an indefinite quantity of matter; and there are enough to justify the hypothesis, that the germ power, thus limited, is in some measure consumed in the development of every new structure, and, in a less measure, in the growth and maintenance of those already formed. The instances to which I shall refer are explicable on this hypothesis, and are, therefore, evidences of its probability.

"First, then, it appears constantly true that the reparative power is greater in all parts of the young than of the older individuals of all species. Even when we compare individuals that have all attained their highest development and growth, this rule seems to be true. We know it from general observations of the results of similar injuries and diseases in persons of different ages; numerous as the exceptions may be, the general rule seems true. And it is yet more evidently proved in the case of some lower animals. Spallanzani mentions it expressly in regard to the reproduction of the tail of the tadpole. The quickness with which the work of reproduction is both begun and perfected, was always, in his experiments, in an inverse ratio to the age of the tadpole. He says the same for the reproduction of the legs of salamanders, and it is only in young frogs and toads that any reproduction of the limbs will take place. So, too, in experiments on the repair of fractures, the union of tendons and the like, in the Mammalia; one may see abundant evidence that the vigour and celerity of the process are in an inverse proportion to the animal's age. There is, indeed, some reason to believe that, in the very early period of embryonic life, a true reproduction of parts of limbs may take place, even in the human species; for (not to speak of the possibility that supernumerary members may sometimes have been formed in consequence of accidental fission of the budding limbs of the embryo), there are some cases in which fingers are found on the stumps of arms in such circumstances as justify the belief that, after a limb had been accidentally amputated in the uterus, these had been produced on its remaining portion.

"All these facts agree well with the belief that the germ-power is gradually diminished in the acts of organizing matter for the maintenance of the body; and the difference between the reparative power in children and that in adults appears so much greater than the difference in adults of different ages, that it is probable the germ-power is more diminished by growth than by mere maintenance.

"However this may be, it seems certain that the capacity for the repair or reproduction of injured parts is much more diminished by development than by growth or maintenance of the body; *i. e.*, much more by those transforma-

tions of parts by which they become fitted for higher offices, than by the multiplication or maintenance of those that are already perfect in their kind and function. In other words, to improve a part requires much more, and more perfect, formative power, than to increase it does.

"This, as a general principle, is exemplified in many instances. In the greater part of congenital malformations, we find arrest of development, but no hindrance of growth; as a heart, in which a septum fails to be developed, yet grows to its full bulk. So, if tadpoles be excluded from due light and heat, their development will be much retarded, but their growth will be less checked. So, too, in the miscalled cultivation and improvement of flowers, growth is increased, but development is hindered; and an excess of coloured leaves is formed, instead of the due number of male and female organs. Or, again, in an old ulcer or a sinus, cells may be continually reproduced, maintaining or even increasing the granulations, yet they will not develop themselves into cellular tissue and cuticle for the healing of the part; and so, even when repair and reproduction have gone far towards their ultimate achievement, that which takes a longer time, and oftener fails, is the improvement, the perfecting of the new material, by its final development. This is observed in all cases of reproduced limbs, and even in ordinary scars.

"These facts (and there are many others like them) seem to justify the expression that, not only more favourable conditions, but also a larger amount of organizing force, is expended in development than in growth. If we may thus interpret the facts, they will be collateral evidence for the belief that, in different species of animals, the reparative power will bear an inverse ratio to the amount of development already passed through; so that, for each species, in its perfect state, the reparative power might be measured by the degree of likeness between the embryonic and the perfect form, structure, and composition. The greater the sum of dissimilarities in all these respects between the embryo and the perfect animal, the less seems to be the reparative power in the latter.

"It is consistent with this that the highest amount of reparative power exists in those lowest polypes, in which, as my colleague has so ably argued, the materials of the germ mass yet remain, not transformed, but multiplied, and, as it were, grouped into the shape of their bodies. In the fresh water hydra, the power of the germ appears communicated without loss to all the cells that descend by multiplication from the original germ cells; provided only the cells are not developed into higher forms or into subserviency to special functions. In the hydra viridis, and hydra fusca, it seems literally true that any minute cluster of cells derived by mere multiplication from those of the germ mass, may, after being separated from the perfect body, reproduce the perfect form. This is the general truth of the numerous experiments performed on hydræ by Trembley, Roesel, and others. They have been so often quoted, that I need not do more than mention the greatest instances of reproductive power that they showed.

"Trembley cut a hydra into four pieces; each became a perfect hydra; and while they were growing, he cut each of these four into two or three. These fractions of the quarters being on their way to become perfect, he again divided these, and thus he went on, till from the one hydra he obtained fifty. All these became perfect; he kept many of them for more than two years, and they multiplied by their natural gemmation just as much as others that had never been divided. So that a division by fifty did not perceptibly diminish the power of the germ present in the polype that was thus subdivided. Again, he cut similar polypes longitudinally, and in an hour or less each half had rolled itself, and seamed up its cut edges, so as to be a perfect hydra. He split them into four—he quartered them—he cut them into as many pieces as he could, and nearly every piece became a perfect hydra. He slit one into seven pieces, leaving them all connected by the tail, and the hydra became seven-headed, and he saw all the heads eating at the same time. He cut off the seven heads, and, hydra-like, they sprang forth again. And even the fabulist dared not invent such a prodigy as the naturalist now saw. The heads of the Lernæan hydra perished after excision; the heads of this hydra grew for themselves bodies, and multiplied with as much vigour as their parent-trunk.

"Now these instances may suffice to show that in the lowest polypes the process of reproduction after injury confounds itself with that of their natural generation by gemmation, or, as it probably more rarely happens, by spontaneous fission. We cannot discern a distinction between them; and there are some things which seem to prove the identity of the power which operates on both. Thus, in both alike, the formative power is limited according to the specific characters of the hydra; immense as the power of increase is, which may be brought into action by the mutilations of the hydra, yet that power cannot be made to produce a hydra of much more than ordinary size, or to raise one above its ordinary specific characters. And again, the identity of the power is shown in this,--that the natural act of gemmation retards that of reproduction after injury. Trembley particularly observes that, when a hydra, from which the head and tentacula had been cut off, gemmated, the reproduction of the tentacula was retarded soon after the gemmule appeared.

"The instance of the hydra is only one of many proving it to be a general law, that a large power of repair and reproduction after injury exists in the species in which propagation by spontaneous fission, or by gemmation, is possible. I need not say how consistent this is with Professor Owen's doctrine,—that partheno-genesis, or the capacity of generating without previous impregnation of the parent, is dependent on a retention of a part of the original germ-cells, or of their direct and untransformed descendants, within the body of that parent. Wherever such cells are, there is the power, without the need of impregnation, of producing a new individual; and in all the instances in which such cells form part of the general substance or parenchyma of the body, an injury may be said to act only as a stimulus, exciting the premature exercise of a ready power, which, in the natural case, appears as the generative, but, in the accidental case, appears as the reparative power.

"I need not enumerate the species which manifest this coincidence of the power of propagating by gemmation or fission, and of reproducing large portions of the body, and even of reconstructing, from fragments, the whole body. They include, as chief examples, the actineæ—which, after bisection, form two perfect individuals—and the holothuriæ, which, as Sir J. G. Dalyell has observed, when hurt or handled, will eject all their viscera, leaving their body a mere empty sac, and yet in three or four months will have all their viscera regenerated. They include, also, from among the anellata, the young nereids, and those species of nais, on which Bonnet, Spallanzani, and others, made their marvellous experiments—experiments of which the climax seemed to be achieved when a nais was cut by M. Lyonnet into thirty or forty separate pieces, and there were produced from these fragments as many perfect individuals.

"Instead of dwelling on these instances, let me mention some observations, made by Sir J. G. Dalyell, upon other polypes, which seem calculated to illustrate in a remarkable manner the general laws of the reparative processes in even the higher animals.

"In the hydra tuba—the species of which he has traced that marvellous development into medusæ—he has found that, when cut in halves, each half may regain the perfect form; but this perfect form is regained only very slowly, and, as it were, by a gradual improvement of parts that are, at first, ill-formed. The diagram, copied from his plate, shows these stages of improvement. The fact may possibly be explained (as he suggests) by the mutilation having disturbed the progress of the hydra in its development of young medusæ; for the experiment was made in March, nearly at the time when the series of changes should have commenced. But, if I may venture not to accept the suggestion of so admirable an observer, I should suspect rather that this is an instance of gradual recovery of perfection, such as we see more generally in the repair of injuries and diseases in the higher animals.

"He has noticed something of the same kind, and more definite, in the tubularia indivisa, one of his experiments on which is illustrated by this diagram, copied from his representation of it. A fine specimen was cut near its root, and after the natural fall of its head, the summit of its stem was cloven. An imperfect head was first produced, at right angles to the stem, from one portion of the cleft; after its fall, another and more nearly perfect one was regenerated,

and, as it grew, improved yet more. A third appeared, and then a fourth, which was yet more nearly perfect, though the stem was thick, and the tentacula imperfect. The cleft was almost healed; and now a fifth head was formed quite perfect; and after it, as perfectly, a sixth and seventh head. All these were produced in fifteen months.

"The lower half of this specimen had been cut off four months after the separation of the stem. Its upper end bore: first, an abortive head; then secondly, one which advanced further in development; a third, much better; and then, in succession, other four, which were all well formed.

"The upper portion of this lower half of the stem now showing signs of decay, a portion was cut from its lowest part, and further manifested the reproductive power of the stem; for three heads were produced from the upper end of the piece cut off, and four from the lower end of the upper piece which had seemed to be decaying. In five hundred and fifty days this specimen had grown twenty-two heads.

"Now, I cannot but think that we have, in these instances of gradual recovery from the effects of injury, a type of that gradual return to the perfect form and composition, which are noticed in the higher animals. Our theory of the process of nutrition leads us to believe that, in the constant mutation of particles in nutrition, those elements of the blood, or of any structure that have been altered by disease, in due time regenerate or die, and are cast off or absorbed, and that those which next succeed to them partake, through the assimilative force, of the same morbid character; but that, every time of renewal, the new particles, under the influence of the germ-power, approach a step nearer to the perfect state. Thus, as it were, each generation of new particles is more nearly perfect, till all the effects of the injury or the disease are quite obliterated. Surely, in the gradual recovery of perfection by these polypes, we have an apt illustration of the theory—one which almost proves its justice."—*Lond. Med. Gazette*, June, 1849.

5. *Microscopical Examination of the Contents of the Hepatic Ducts, with Conclusions founded thereon.* By T. Wharton Jones, F. R. S.—In the contents of the larger hepatic ducts there are seen, on microscopical examination: 1st, the detached columnar epithelium cells of the ducts themselves; 2d, free oval nuclei, which appear to have been derived from cells of this kind; 3d, free round nuclei, apparently derived from the proper hepatic cells; 4th, minute granules, free or in amorphous flakes, globules of oil, and fragments of cell walls. In addition to these, in the smaller ducts, are found cells resembling those of the parenchyma of the liver, except in being usually paler, on account of the contained granules and globules being fewer and more minute. Having, by way of comparison, examined the contents of the pancreatic duct, and recognized in it, with its own columnar epithelium, the free nuclei and granular amorphous matter resulting from the disintegration of the secreting cells developed within the vesicles of that gland, the author considers that, from the analogy of the products of the secreting action in the two cases, an argument may be fairly drawn in favour of the analogy in essential nature between the cells of the hepatic parenchyma and the endogenous cells of the pancreas and other glands of ordinary construction. This deduction helps to confirm the view of the structure of the liver propounded by Dr. Leidy.—*Phil. Trans.*, 1848.

ORGANIC CHEMISTRY.

6. *Sugar found in the Blood, Tissue of the Kidney, &c., but not in the Spleen and Pancreas, of a Diabetic Patient, who died suddenly.*—M. Bernard lately examined the body of a diabetic patient, under the care of M. Rayer, who died suddenly on the third day after admission into hospital. The urine, drawn off while the patient was yet warm, contained a large quantity of sugar. The liver, misshapen, and much larger than in the natural state, contained also a large proportion. The kidneys were also enlarged; the left kidney weighed 245 grammes

(nearly eight ounces), and the right, 235 grammes (seven and a half ounces). On washing the tissue of the kidneys, sugar was obtained, but in a much smaller quantity than from the liver. The pancreas and spleen were diminished in size, and contained none; nor was there any in the nervous centres. The blood contained large quantities of sugar, from whatever part it was taken. M. Bernard, in calling to mind a case in which the serum of the blood, left to itself, became acid by the decomposition of sugar, remarks that this bears on a circumstance in the present autopsy. Sugar was found in the serosity which filled the pericardium; but this same alkaline serosity, when removed from the pericardium, became acid in consequence of the decomposition of the sugar. The intestinal and gastric juices, which seem remarkably fitted for the decomposition of sugar, contained none. M. Bernard has met with sugar in the semen of a goat, which had been artificially rendered diabetic. It is interesting to know that, in cases where the tissues and fluids of a diabetic patient can be examined after sudden death, sugar may be found in the blood, liver, and kidneys. The difference in the reaction of the fluids, hitherto referred to the cause which produces the diabetes, is seen to be dependent merely on the decomposition of the sugar.—*Lond. Med. Journ.*, Aug. 1849, from *Gazette des Hôpitaux*, July 10th, 1849.

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7. *On the Composition of the Salts of the Blood, and of their Relation to the Formation of Vesical Calculi.*—M. Verdeit states that the proportions of the different saline compounds in the blood are greatly affected by the nature of the diet; the blood of animals nourished exclusively on flesh being rich in phosphates, with alkaline bases, and containing scarcely any alkaline carbonates; whilst the blood of animals restricted to vegetable diet presents the reverse condition, the alkaline carbonates being present in large amount, and the phosphates existing in it in very small quantity. These differences present themselves not only between the blood salts of carnivorous and of herbivorous animals respectively, but also between those of the same animal nourished for a time upon an animal and a vegetable diet exclusively. Thus, the blood of a dog fed upon meat for eighteen days yielded 12.75 parts of alkaline phosphates in 100 of ash; but, when it had been partly fed for fifteen days upon bread and potatoes, the proportion fell to 9 per cent.; "and if," says the author, "I had been able to sustain it on an exclusively vegetable diet, the amount would have fallen to 2 or 3 per cent., as in the blood of the ox or the sheep." These observations, if confirmed, will have a very important bearing upon the treatment of calculous disorders, since urinary deposits consist, in by far the greater number of cases, either of uric acid or of phosphates. Now, uric acid is sparingly soluble in water, and still less so in acid urine [this does not agree with the statements of Liebig, which have been confirmed on this point by others]; but it is rendered much more soluble by the presence of alkalies in the urine. Now, as the acidity of the urine is due to the excess of phosphoric acid, which is the result of an animal diet, a vegetable diet, which will render the urine alkaline like that of the herbivorous animals, is indicated. On the other hand, if the phosphates constitute the materials of the deposit, their amount in the blood and urine may be lowered in the same manner.—*Brit. and For. Med.-Chirurg. Rev.*, July, 1849, from *Gazette Médicale*, June, 1849.

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8. *Investigations and Experiments on Human Blood.* — Dr. Giovanni Polli, well known by his iatro-chemical labours, has published, in the *Giornale Lombardo di Scienze, &c.*, a memoir on human blood. Of this highly interesting paper we shall give a brief analysis.

Buffy Coat.—Dr. Polli thinks, with many other pathologists, that the formation of this substance depends on the greater or less rapidity of the coagulation. The white, depressed, and very thick buffy coat points to blood slow in coagulating, and rich in fibrine; the clot is then dark red, and so much the softer as the buffy coat is firmer. The gelatiniform coat indicates, likewise, slow coagulation, but a diminution in the amount of fibrine. A rugose coat denotes the slowest coagulation. A clot both buffed and cupped, and adhering to the parietes of the vessel, results from thin blood which has pretty rapidly

coagulated. This latter character generally appears after repeated and abundant bleeding. The grayish and striated coat is connected with a great density of blood and slow coagulation. The question how far the aspect of the blood can serve as a criterion for the further use of venesection, is answered thus:—1. Slow coagulation indicates an excess of strength and inflammation; rapidity of it, weakness and exhaustion. 2. The tardiness of coagulation may be measured by the height and thickness of the coat. 3. The first and twelfth ounce, in a venesection of twelve ounces, coagulate within different spaces of time, and present, therefore, different coats. 4. In bleeding to syncope, the last portions of the blood coagulate rapidly, and are not buffed, though the first showed the reverse phenomena. 5. When bleeding is performed in the stage of oppression, which precedes asphyxia or apoplexy, the first portions of the blood coagulate rapidly, and without buffy surface; the latter portions, particularly when the circulation is re-established, present the contrary appearances. 6. In the different evacuations of blood which have taken place in successfully combating an inflammation, the first portions of the blood, towards the development of the affection, coagulate rapidly, and are very little buffed; whilst the latter portions of the same evacuations coagulate slowly, and have a thicker coat. The two extreme portions of one venesection follow the same progress, as to coagulation and the buffy surface, as the disease itself. Lastly, towards the latter end of the disease, the last portions of one bleeding are quick in coagulating, and are not much buffed; whilst the first coagulate more slowly, and are more buffed. 7. When the latter portion of the bleeding presents a slower coagulation than the first, the patient experiences much less weakness, and more liberty in the circulation and the functions, towards the end than at the beginning of the bleeding. This is a proof that he feels the disease more than the abstraction of blood; bleeding is then indicated, and useful. 8. When the latter portion of the bleeding coagulates more quickly than the first, it shows that the inflammation is yielding to the treatment; or that the patient is near syncope or weakness. Bleeding may, in such a case, be still indicated, but it should be used with moderation. 9. If the two extreme portions of the bleeding coagulate slowly, and present the same coat; if the inflammation is not accompanied by an oppression of the circulation; or if the patient bears the abstraction of blood without giving any signs of exhaustion, bleeding is still indicated. 10. If the two extreme portions of the bleeding coagulate rapidly, and the last still more quickly than the first, there is no longer any excess of strength to be overcome; any further abstraction of blood would merely weaken the patient, and is clearly counterindicated. 11. The indication furnished by the two extreme portions of the bleeding extends over the space of about twelve hours; it may extend further, if the disease is giving way, but may still vary, from the presence of a new exacerbation.

Fibrine.—The mere augmentation of fibrine in the blood is connected with an inflammation in the first degree. When the same fibrine coagulates slowly, a higher degree of inflammation is indicated; and rarefied fibrin points to a still higher degree than the last; but complete resolution is still possible. Each of these modifications of the fibrin is made manifest by a peculiar state of the clot.

Influence of Venesection on the Quantity and Density of the Blood in Circulation.—By means of the areometer, Dr. Polli has ascertained that the last portions of an emission of blood have a less density than the first. This diminution in the density indicates the introduction into the mass of the blood of a thinner fluid which is diluting it. By this circumstance may be calculated how much fluid is introduced at each bleeding, by observing the diminution in the density. By numerous experiments, the author is led approximatively to estimate the loss produced by an ordinary bleeding to a thirtieth of the blood then left in the system; and the amount of serosity absorbed in the interval of one venesection to the other, in twelve hours, to double that fraction.

Quality of the Blood.—1. The diminution in the density of the blood, produced by bleeding, does not bear equally upon all the constituents of that fluid. 2. Abstraction of blood does not diminish the proportion of fibrin remaining in the economy; it may even increase it at the expense of the globules dissolved by the new serosity, or those which are obtained from the substance of the mus-

cles. 3. Repeated bleedings, carried to a certain extent, instead of producing on the serum of the blood the impoverishing effect which the other materials of the blood suffer, increase the density of the serum. 4. A large venesection, performed at once, produces effects different from those resulting from the abstraction of the same amount of blood taken at various times. The impoverishing effect of a single large bleeding is three times greater than that produced by taking away the same quantity of blood at several times. 5. Bleeding, carried too far, is apt to cause the generation of false membranes, and favour serous effusions. 6. The temperature of the blood falls at once, on venesection being performed, but soon becomes higher than what it was before the abstraction of blood.

Motion of the Blood.—1. Emissions of blood always have the effect of producing a movement of the mass of the blood in the capillaries, in virtue of which the blood presses towards the opening which habitually gives it passage. 2. Abstraction of blood from the venous branch of a little venous vascular system causes a more rapid motion, not only as regards the blood of the neighbouring venous twigs, but likewise in the corresponding arteries. 3. Gravity exercises in the capillaries, as well as in the larger vessels, a decided action on the circulation of the blood, which action may be made available in the abstraction of blood. 4. Venesection, with man, as well as the lower animals, has the effect of accelerating the pulse. 5. Abstraction of blood, both in animals and man, renders the action of the heart apparent, and allows those arterial twigs to be seen which are not perceivable in the ordinary state. 6. Bleeding to syncope renders the pulse slower. 7. Repeated bleedings have a tendency, not only to accelerate the circulation, but also to increase the frequency of respiration; and these two effects are very slow in disappearing.—*Lancet*, Aug. 4, 1849.

MATERIA MEDICA AND PHARMACY.

9. *On Glycerine and its Therapeutic Uses.*—The employment of glycerine as a local application in the treatment of deafness, and also for other purposes as a medicinal agent, has induced us to offer a few remarks on the preparation and properties of this hitherto neglected body.

To obtain glycerine, any fatty matter is saponified by a caustic alkali. The solution being decomposed by tartaric acid, which precipitates the fatty acid, is to be evaporated, and the glycerine dissolved out by strong alcohol. For medicinal use, it is best obtained by evaporating the water used in making *emplastrum plumbi*. Any lead which it may contain is removed by a stream of sulphuretted hydrogen passed through it when in a diluted state. If necessary, it may be boiled with animal charcoal, filtered, and evaporated.

It is a colourless syrup, sp. gr. = 1.26; it dissolves in water and alcohol, but is insoluble in ether (Kane's Chemistry, 1849, p. 872). Glycerine undergoes no change by keeping, but it is decomposed by heat; and when mixed with yeast, and kept in a warm place, is gradually decomposed, and converted into *metacetonic acid*. Its formula is $C_6H_7O_5+Aq$.

Glycerine has a strong attraction for moisture, and being of a bland, innocuous nature, it is obviously well adapted to afford a permanent moist covering to any part of the body to which it may be applied. It was first employed by Mr. Yearsley in cases of deafness, arising from partial destruction of the membrane of the tympanum, and Mr. J. Wakley and others have extended its employment to all cases of deafness accompanied by dryness of the external meatus, and it is probable that in some cases of this kind it may be more serviceable than the almond oil commonly employed to remedy a deficiency of cerumen. Dr. Paterson, of Edinburgh, has obtained some improvement in one of three cases in which he applied it. A small piece of cotton wool is moistened with the glycerine, and introduced into the ear. When there is loss or partial destruction of the tympanum, we are directed to use a very small quantity of wool, and to moisten it well with the glycerine. This is passed to the site of the membrane,

and when there, "the spot must be found which it is indispensable the wool should occupy and cover; for then only, and not till then, will success attend the application, and the patient regain the hearing."

Glycerine has been employed also as a local application in psoriasis by Mr. Startin, and, it is said, with advantage.—*Monthly Retrospect*, Aug. 1849, from *Pharm. Journ.*, *Med. Times*, and *Lancet*.

10. *On Large Doses of Subnitrate of Bismuth in Gastro-Intestinal Affections.*—M. Monneret states that he has been for some years engaged in experimenting upon the medicinal qualities of this substance, and that he finds that, given in far larger doses than are supposed to be permissible, it is of the greatest value in gastro-intestinal affections, especially those attended with fluxes.

Simple Diarrhœa.—It is especially in the diarrhœa of infants, resulting from imperfect lactation, that he has found it so very useful, large doses curing such in a few days. So, too, after weaning, and the injudicious diet so often adopted, the bismuth, in doses of three teaspoonfuls a day, soon removes all symptoms of disordered digestion, especially the serous diarrhœa so often produced in these cases. Simple diarrhœa is of much rarer occurrence in the adult; still, examples are met with in which we cannot attribute it to either phlegmasia or ulceration of the intestines, as in the granular disease of the kidneys, in chlorotic women, in women become anemic from cancerous degeneration of the uterus, and in some cases of chronic disease of the heart, or in commencing phthisis. Those cases in which the diarrhœa is serous, and results from an atonic state of the gastro-intestinal membranes, best yield to this medicine. It should be given in gradually increasing quantities from two drachms to twelve or more per diem.

Diarrhœa symptomatic of Intestinal Lesion.—In spite of the presence of symptoms indicative of inflammatory action, the author has frequently administered the bismuth to children with great success. So, too, he has found it very useful in some subjects of phthisis suffering from obstinate colliquative diarrhœa, and even in the diarrhœa of typhoid fever, when the intestinal canal was certainly the seat of very numerous ulcerations. In this last case, its utility is not very permanent; but it has the advantage of inducing the tolerance of articles of diet or medicine, which, without it, would be rejected.

Cholerine.—The frequency with which gastro-intestinal disturbance precedes true cholera is well known, and the desirability of its suppression is evident; and to this end large doses of bismuth succeed better than any other means. It is most suitable in the cases in which with the diarrhœa there are nausea, vomiting, gastralgia, colicky pains, borborygmi, and anorexia. The cases are innumerable, in which the author has been enabled rapidly to relieve these symptoms without any aid from opium, by giving eight or ten drachms per diem. The only inconvenience resulting is a certain amount of constipation.

Gastralgia.—Various observers have already admitted the great utility of this substance, both in idiopathic gastralgia and in the forms dependent upon hysteria, hypochondriasis, chlorosis, &c. &c.; but it has frequently failed in the hands of others, by being given in doses of two or three scruples per diem, in place of twelve or fifteen drachms; and it is taken with such ease, that the patients voluntarily continue its employment after the pain has ceased, until the gastro-intestinal functions are thoroughly re-established. The idiopathic forms of gastralgia, so often met with in sedentary or literary persons, and in those suffering from depressing emotions, or from abuse of alcohol or coffee, are those which are most successfully combated. It has often, too, enabled the stomach to bear those tonic aliments, whose slow and painful digestion, accompanied by cephalalgia, drowsiness, and pain in the back and limbs, is so often observed in chloro-anemic patients. This medicine produces only a temporary relief in gastralgia, dependent upon organic disease of the stomach, except when this viscus secretes a large quantity of acid fluid.

Vomiting.—Vomiting may depend upon a simple gastric neurosis, and then the bismuth can be very usefully employed. It is also useful in the vomiting of pregnancy, and that accompanying dysmenorrhœa; but its efficacy is less

certain than in affections of the gastro-intestinal tube, and is never so great as when diarrhœa, colic, and flatus are present. From whatever cause pain manifests itself during digestion, we may relieve it by mixing the subnitrate freely with the articles of food.

Administration and Action.—It should be given in powder, and best so with the first spoonful of broth or gruel. It excites no disgust, especially if placed between two bits of bread soaked in broth. Children take it readily with milk or ptisans. The author has never given less than from two to three drachms per diem, nor more than twenty, and he has never observed the slightest inconvenience from these large doses; and it is his custom to give it to the children in his hospital by spoonfuls or tablespoonfuls, without observing more exactitude, so innocuous is it. So imperfectly is this fact known, that the chemists hesitate in preparing his prescriptions in which these large doses are ordered. The author cannot conceive why this substance was ever set down as an irritant poison, as he has never found the slightest irritation from the largest doses given to either the healthy or the sick; and post-mortem examination proves that, beyond patches of black discoloration, it produces no effect on the mucous membrane, the consistence of this remaining quite normal. The action of the substance on the canal seems to be quite negative, that is to say, the anormal symptoms for which it was prescribed quickly disappear. Great attention has failed also to detect any marked effect upon any other part of the system. Perhaps the urine is somewhat increased, and the pulse becomes slower; but this is probably due to the relief of the gastro-intestinal affection. The action of bismuth is then purely a *local* one; and this local action, so far from being an irritant one, as so commonly stated, diminishes the activity of the phenomena of which the mucous membrane is the seat. It is not to be supposed, however, that this inert substance can act actively and directly upon the canal, as a soluble body after absorption does; and it is probable that it acts merely as an inert body, just as charcoal might act, mechanically protecting the over-excited secretory organs and papillæ of the nerves from the too immediate contact of the fluids, and especially of aliments. By its mechanical apposition, it limits the amount of exhalation. The allegation of its antispasmodic properties has solely arisen from observing the diminution of the symptoms, without considering whether this might not arise negatively from the preservation of the gastro-intestinal surface from the causes of irritation. In this way, we might call darkness an antispasmodic, because it gives repose to the retina, and tends to subdue the irritation which gives rise to photophobia.—*Brit. and For. Med.-Chirurg. Rev.*, from *Gaz. Méd. de Paris*, Nos. 15 and 16.

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11. *Concealing the Taste of Fish Oil.*—Now that the swallowing cod-liver oil bids fair to become the fashionable mania of the day, it may be as well to state the simple and effectual means communicated by M. Frederico, of disguising its abominable taste. This merely consists in masticating a morsel of dried orange peel just before and just after swallowing the dose.—*Rev. Med.-Chir.*, tom. v.

[We have employed this means in one case, and with a very satisfactory result. The patient states that the taste of the oil is entirely disguised, by the use of the orange peel.]

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12. *Therapeutic Action of Aconitum Napellus.*—The following is an abridgment of papers, by M. Tessier, on this subject, in the *Gazette Médicale de Lyon*, for 15th and 31st January, 1849:—

Aconite has three modes of action, viz.: a *narcotic*, an *antiphlogistic*, and a *special action on the skin.*

1. Narcotic Action.—Some deny that aconite acts in this way; but, nevertheless, the fact is incontestable. It is sufficient to place some drops of the tincture on the tongue, to be satisfied of the narcotic action on the nervous system; for it excites a very decided feeling of numbness in that organ. Besides, when a full dose is administered, it is no uncommon thing to observe delusions, vertigo, collapse, and delirium—in fact, such effects are known to follow opium and poisons from the family *Solaneæ*. In painful diseases, too, it often gives a wonderful immunity from pain. I have administered Aconite

in a great number of painful diseases—in dull pains in the bones, in facial neuralgia, in toothache, sciatica, cancer, &c.; and have observed effects which, from their diversity, well merit attention. While morphia, with a few very rare exceptions, calms every species of pain, aconite only relieves a certain special class. Thus I have never been able, by means of it, to assuage the pain of exostosis, cancer, myelitis, nephritis, gastralgia, or whitlow; but, on the other hand, I have obtained the best results from its use in such painful affections as have a catarrhal or rheumatismal cause, along with disordered function of the skin, such as rheumatism, angina, toothache, &c. Aconite is, then, in a certain class of cases, a narcotic agent (*agent stupéfiant*), but this action is subordinate to another, afterwards to be spoken of.

2. Antiphlogistic Action.—The reality of this mode of operation is believed in by Dr. Fleming; by Dr. Giacomini, who places aconite among the hyposthenic arterial remedies; and by the homœopaths, who affirm that this medicine may be used as a substitute for bleeding in the most urgent cases. To solve the question, as to the existence of antiphlogistic properties, it will not do (like Dr. Fleming), to choose cases of rheumatism, bronchitis, pneumonia, erysipelas, or neuralgia, all of which can usually be cured without the abstraction of blood: but we must take diseases in which bleedings are regarded as indispensable, as inflammation of the brain, apoplexy, peritonitis, hypertrophy of the heart, inflammatory fever, and ophthalmia from the introduction of a foreign body into the eye. In my experiments with aconite on the latter class of cases, I have not met with a single instance in which the aconite could usefully be preferred to bleeding. I have also given it in active hemorrhages, in hæmoptysis, and in menorrhagia—and without any advantage. From my observations, aconite does not appear to be more suitable to the plethoric: and upon the whole, I am inclined to think that it answers best with persons of a nervous or lymphatic temperament, and especially with those predisposed to rheumatismal and catarrhal affections. I do not, however, maintain that aconite *never* acts as an antiphlogistic: for by and by I am going to mention cases in which it has sensibly reduced the pulse; but then I will show, at the same time, that the action on the circulation was *indirect*, and that it is by regulating another function that aconite diminishes fever.

3. Action on the Skin.—If the principal therapeutic action of aconite be neither narcotic and calmative, nor antiphlogistic, what is it? My reply is, that *the special action of aconite is on the skin.* It possesses the property of eliminating from the vessels of the skin the hurtful matter, and of re-establishing the cutaneous functions when deranged by checked transpiration, or by some virus. I think that it has the special power of controlling diseases arising from cold, and others in which a morbid principle is retained in the cutaneous tissues, as occurs in the exanthematous fevers. It is a suitable medicine in all those diseases in which the function of the skin is disordered, as in articular and muscular rheumatism, as well as in rheumatism of the nerves, including sciatica and odontalgia; also in affections of the mucous membranes, such as bronchitis, etc.; likewise in the exanthemata.

Diseases in which Aconite is used.—Courbature.—A bruised feeling in the limbs, creeping sensations on the surface, lassitude, headache, and general discomfort, constitute the group of symptoms called by this name: and they are also symptoms which specially indicate the use of aconite. The desired relief will generally follow, by taking daily from five to ten drops of the alcoholic tincture, in a little water, or bland vegetable infusion.

Catarrhal Fever, as Hufeland showed, is caused by the suspension of the active functions of the skin. Its physical characters are: alternations of heat and cold, dragging pains in the limbs, increased frequency in the desire to make water, a tendency to sweat, general fever complicated with a local affection, which is generally coryza, angina, or bronchitis. The therapeutic indications are: 1st, To re-establish the functions of the skin; 2d, To subdue the irritation of the nose, throat, and bronchial tubes. Aconite fulfils all these intentions. In catarrhal fever, as in *courbature*, it causes the pain in the limbs, the shiverings, and the heats to subside, and, at the same time, greatly simplifies the progress of the affection of the mucous membrane. But aconite does not,

unaided, fulfil the second intention, which requires the assistance of opiates, blisters, or such other means as may be suitable.

Angina and Acute Bronchitis.—Like MM. Tessier, of Paris, and Gabalda, the author has seen aconite of much service in these affections, by diminishing, in the former, the pains of deglutition, and in the latter, rendering the fits of coughing much less distressing.

Rheumatism.—To have a correct appreciation of the action of aconite in rheumatism, it is necessary to discriminate between the different forms of rheumatism, for it is very far from possessing the same influence over all of them. The cases in which it succeeds best are—recent rheumatic pains, unaccompanied by swelling and fever, or in which these symptoms are slight. In them, it possesses very great efficacy, and is preferable to bleeding; also to inoculation with morphia, or the use of belladonna—which drugs are mere palliatives of pain. In acute articular rheumatism, accompanied by decided swelling of the joints and ardent fever, aconite is of less value. At the onset, however, of such attacks, it may be administered with advantage, for the purpose of diminishing the afflux of blood [*la fluxion*] to the joints; but when the synovial membrane and the fibrous and ligamentous structures of the joints become inflamed, aconite is useless, and, in my opinion, the best treatment is by large doses of nitrate of potash. In chronic apyrexial rheumatism, the results are good, though not so striking as in recent attacks. By persevering in the use of aconite for six weeks or two months, obstinate rheumatic pains, which have existed for years, may be subdued. Aconite, besides being remedial, possesses preventive properties, by its decided influence over the rheumatic diathesis. When given with this view, it must be continued for months. In all rheumatic affections, but especially those which are chronic, the doses must be much larger than those which are suitable in the diseases formerly spoken of. It is necessary to begin with ten or twenty drops of the alcoholic tincture, and to increase the quantity up to four, six, or eight grammes.*

Eruptive Fevers.—In these affections, as in catarrhal fever, the pulse is brought down: the eruption is also made to come out better. The beneficial influence of aconite on the progress of the exanthemata has already been mentioned, in a work published at Lyons—*La Pharmacopée de Vitet*. It does not appear whether the discovery of this property of the medicine belongs to Vitet, or whether it was stated by him at second hand.

Erysipelas.—M. Tessier agrees with Drs. Fleming and Gabalda in believing that aconite diminishes the duration and the danger of this disease. I would wish to call the attention of surgeons to its value in erysipelas attacking wounds; so that my observations may be verified. I have several times seen a prompt and remarkable amendment follow the daily use of from ten to twenty drops of the tincture, in cases of erysipelas spreading around wounds and ulcers, and accompanied by severe constitutional symptoms.

Pneumonia.—M. Tessier agrees with Dr. Fleming that the aconite, when administered at the commencement, tends to restore the suppressed transpiration from the skin, and may thus give a milder character to the disease: but if inflammation have actively set in—if auscultation reveal engorgement and condensation—we must not anticipate resolution from the exhibition of aconite.

Mode of Administration.—I am truly astonished at Dr. Fleming recommending the largest doses to be used when an antiphlogistic, rather than an anodyne or narcotic, effect is desired. However much I respect so distinguished an authority, I must state that my practice is entirely different. In a case of rheumatism, neuralgia, or any other affection in which I wish the calmative

* Let us caution our readers not to use the tinctures in common use in this country in such doses. No physician ought to prescribe aconite, without minutely specifying the preparation he intends to be used. That which we prefer is Dr. Fleming's *Tincture of the root*, which is transparent, in colour like sherry wine, and of a slightly bitter taste. The following is the formula: "Take of root of A. Napellus, carefully dried and finely powdered, sixteen ounces troy; rectified spirit, sixteen fluid ounces; macerate for four days; then pack into a percolator; add rectified spirit until twenty ounces of tincture are obtained." Dose, from three to five minims in repeated doses.

properties of the medicine, I give from ten to twenty drops of the tincture, and gradually augment the dose to three, four, five, or even to eight grammes in the day; but, on the contrary, when I give it in the *courbature* or catarrhal fever, I order only from five to ten drops in the twenty-four hours, and by such doses I bring down the pulse, and diminish all the other febrile symptoms, without inducing any symptoms of poisoning. I prefer the tincture, as more certain than the extract. The tincture, diluted with one or two parts of water, may be applied topically in neuralgia; but used in this way, aconite is an uncertain remedy.—*London Journ. Med.*, June, 1849.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *The Microscopic Constituents of Tubercular Deposits.*—Different observers of tubercles have variously stated, (1,) that it contains peculiar "tubercle cells or bodies;" (2,) that it does not contain any definite microscopic constituents; or, (3,) that the crude or miliary variety contains an organic body of definite form.

Albers, of Bonn, in Schmid's "*Jahrbücher*," No. 2, 1849, confirms the latter of the three opinions. This peculiar body occurs very seldom in miliary tubercles, but more frequently in the infiltrated form. Its size is very variable; its form irregularly roundish; its outer surface is mostly covered with fine amorphous granules; no nucleus exists in its interior, or anything whatever answering to it. This body is the first step to organization, viz., that in which plastic fibrin takes the form of a deformed mass previous to the construction of a cell. But its form is too irregular to afford the presumption of a definite nature; it is merely an aggregation of matter present in crude transparent tubercle, and sometimes called "Enchym-Korper," or pregnant mass. It exists only in the first stage of tubercle, and, in all probability, never undergoes a development into a nucleus, far less into a cell: in the second stage, it disappears by separating into amorphous granules. In this way, the softening of tubercle commences. The amorphous granules increase in number; the "pregnant masses" become smaller and more thickly covered with these granules; and, finally, by the time the tubercle has attained the consistence of pap, they have altogether disappeared; while pus corpuscles are found in their place. The latter appear with the commencement of softening, and increase in number to its termination.

The author states, that these "pregnant masses" are not always present, and that this absence is an indication of a very low capacity for organization. And so their predominance in miliary tubercle indicates the higher capability of this variety—a fact which its more frequent cicatrization corroborates. He regards the suppuration in a tubercular cavity as an effort of nature towards reparation; indeed, he strangely regards it as compensative of the lost tissue; and the pus-secreting membrane he calls a "Regenerations Haut"—membrane of regeneration.

Thus, on the whole, Albers would make out tubercle as even less organized, *i.e.*, containing fewer cell forms, than Rokitansky, Vögel, and other observers. And in any case, whether the few nuclei observed be mere mixture or no, one may notice how little the granular mass deserves the *functional* name of blastema, so erroneously applied to it. The author's "first step to organization" might almost be called "coagulation," since there is nothing here which may not be fairly referred to this well-known process. Finally, the notion of pus being an attempt at "regeneration," is one of those over-strained analogies which could only be imagined after forgetting what regeneration is; or, in other words, an organized body which *never* produces a tissue can scarcely be considered compensative of one.—*Med. Times*, May 5, 1849.

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14. *Preparations illustrative of the Course of Tubercle in the Lungs.*—Dr. Bennett exhibited to the Medico-Chirurgical Society of Edinburgh, May 16th,

some preparations in proof of the sanability of phthisis pulmonalis. In one, a large deep cicatrix was seen in the upper lobe of the lung. The patient had died in the infirmary of delirium tremens. From the account given by his friends, it appeared that, about twenty years before his death, he had been affected with the ordinary symptoms of consumption, but that he was restored to health; apparently in consequence of improvement in his circumstances and habits of life. In another preparation, two stellate puckerings on the surface of the lung were found to correspond to two caverns with indurated walls which seemed to be undergoing the process of cure. In other two preparations, numerous small gritty masses were disseminated; these were specimens of abortive miliary tubercle. These appearances were exceedingly frequent; Dr. Bennett had met with them so often in the post-mortem examinations conducted at the Royal Infirmary, that he had stated, in a communication read several years ago before this society, that evidences of tubercular disease were found in one-third or one-fourth of all who die after the age of forty.—*Month. Journ. of Med. Science*, July, 1849.

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15. *On the Use and Administration of Cod-Liver Oil in Pulmonary Consumption.* By C. J. B. Williams, M.D.—In the important paper which we proceed to analyze, the author arranges the results of his inquiries under three heads: 1. General results of the use of cod-liver oil in phthisis. 2. Its mode of operation. 3. Its preparation and administration.

1. The author states that he has prescribed the oil in above 400 cases of tubercular disease of the lungs in its different stages, of which he has notes of 234. Out of this number the oil disagreed and was discontinued in only nine. In nineteen, it appeared to do no good; while, in the large proportion of 206 out of 234, its use was followed by marked and unequivocal improvement: this improvement varying from a temporary retardation of the progress of the disease, up to a more or less complete restoration to apparent health.

The most numerous cases of lasting improvement were observed in the second stage, in which the tubercular deposit is beginning to soften, the common physical signs being defective movement and breath-sound, with marked dullness and muco-crepitation under the clavicle, or above the scapula, with more decided bronchophony and bronchial breathing towards the seat of the lungs. The effect of the oil, in most of these cases, amounting to near 100, is stated as remarkable. Even in a few days, the cough was mitigated, the expectoration diminished in quantity, the night-sweats ceased, the pulse became slower, and the appetite and strength were gradually improved. The first change manifest in the physical signs was generally a diminution and gradual cessation of the crepitus, the breath-sound becoming drier and clearer; but the dullness and tubular character of the breath and voice-sounds were much more persistent, and rarely exhibited a marked decrease until after several weeks' use of the remedy in conjunction with regular counter-irritation. The author has, however, convinced himself, in several cases, that consolidations have been removed, though in old standing cases the restoration has not been perfect. He states that, even where the health has been completely re-established, the physical signs of consolidation will often persist, and then, if unaccompanied by decided dullness on percussion, he has learnt not to contraindicate recovery, as they appear to depend on puckering of the pulmonary texture, and other changes due to inflammatory deposit.

In cases in the first stage of the disease, the author has used the oil with equally satisfactory results, but of these he cannot speak with equal precision, as many of them were only seen once.

The most striking advantage from the oil he finds to be in the third stage, even when far advanced, where consumption has not only excavated the lungs, but is rapidly wasting the body, with copious purulent expectoration, night-sweats, colliquative diarrhœa, &c. Of the power of the remedy in this stage, he quotes several instructive and encouraging cases. The total number of such cases amounts to sixty-two, in thirty-four of which the improvement is known to have continued up to a recent period. Eleven, after temporary improvement, relapsed and terminated fatally. The author further observes: "The results

above stated give to cod-liver oil, even as a tardative or palliative of phthisis, a rank far above any agent hitherto recommended, whether medicinal or regimenal. I have made trials of several other medicines of reputed utility in this disease, but their utility and harmlessness fall so far short of those of cod-liver oil, that I regard them now chiefly as subsidiary means, and the more likely to be useful in proportion as they facilitate the continuance of this superior agent."

2. *Mode of action of cod-liver oil.*—The author does not think it necessary to discuss the question whether the oil owes its efficacy to the iodine contained in it. To suppose that the minute proportion of this ingredient could be the curative agent, would savour of the absurdities of homœopathy, and besides most of the patients had taken iodine in one form or other previously to taking the oil.

It is commonly admitted, the author remarks, that the oil possesses the power of fattening those who take it for any length of time; but this nourishing influence extends beyond the mere deposition of fat. The muscular strength is sensibly increased, and the colour of the cheeks is improved. There is much reason, he thinks, to believe that the oil proves serviceable by supplying the fat molecules, which appear to be essential to healthy nutrition in forming the nuclei of the primary cells; thus supplying a fat which is capable of being readily absorbed and converted into a better plasma, as well as more readily conveyed by the blood to the vicinity of the tubercular deposits, the absorption of which it favours by dissolving the irregularly concreted fat of which the masses are partly composed.

One of the most remarkable effects of the oil, in the second and third stages of the disease, and in other forms of scrofulous disease, with extensive suppuration, is the speedy removal of the sweats and symptoms of hectic. This the author thinks it does by diminishing the unhealthy suppuration which is excited around the tubercle. The author's view of suppuration is, that it consists of a further oxidation of the exudation corpuscle, and he therefore explains the use of the oil in its offering a combustible material, and thus checking the process of oxidation of the tissues.

3. *Preparation and administration.*—The author repudiates the idea held by the Germans, that the brown oil is the most efficacious. He prescribes the pale oil, as free from taste and smell as it can be procured. To obtain this, he advises that the livers of the fish should be obtained as fresh as possible, the pale plump livers being preferred. These should be pounded into a pulp, and mixed with water of 120°, and filtered; after standing, the oil to be decanted, cooled to 50°, and again filtered. The process is to be quickly performed, and in closed vessels. The author begins with a teaspoonful, gradually increasing to a tablespoonful, floating on some aromatic water. He advises it to be taken about an hour and a half after each meal.

In conclusion, he repeats that cod-liver oil is more beneficial in the treatment of pulmonary consumption than any agent, medicinal or dietetic, that has yet been employed.—*Ranking's Abstract*, vol. ix., from *London Journal of Medicine*, Jan. 1849.

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16. *On the Treatment of Pericarditis; especially on the Effects of Blood-letting and Mercury in that disease.* By John Taylor, M. D., Physician to the Huddersfield Infirmary. (*Proceedings of the Royal Med. and Chirurg. Soc.*, June 22, 1849.)—In this communication, the author has analyzed the forty cases of pericarditis, published in the Lancet in 1845 and 1846, in respect to the treatment of the disease. The cases are divided into two classes: first, those occurring in connection with acute rheumatism, the subjects of which were previously in good health; and secondly, the cases occurring in connection with renal disease, or in persons previously in a bad state of health. The patients in the first class, besides being in good health, were younger, and suffered from much fewer complications than those in the second class. Very few of those in the first class died, whereas all died in the second class. The conclusion from these facts is, that the age and previous health of the patients, and the nature of the complicating diseases, have more influence upon the favourable or unfavourable

termination of pericarditis than any differences in the treatment. The remedies whose effects are examined, are chiefly blood-letting and mercury.

I. *Blood-letting.*—The conclusions arrived at are the following:—

1. The duration of pericarditis increases in proportion as the time is longer between the commencement of the disease and the first bleeding.

2. The duration of the cases bled after the first four days is greater by one-half than that of those bled within the first four days from the invasion of the disease.

3. The influence of bleeding was more marked in the cases in which it was copiously and repeatedly, as well as early, practiced, than in those in which blood was drawn less frequently and more sparingly.

4. Pericarditis is never extinguished at once by bleeding, however early, or however copiously practiced.

5. In several cases, the pericarditis was suspended for a limited time. The suspension in every instance was immediately consequent upon the local abstraction of blood.

6. It is probable that renal has a longer duration than rheumatic pericarditis.

7. Blood-letting must be less copious, and is more frequently inadmissible, in renal, than in rheumatic pericarditis.

8. Blood-letting probably lessens the mortality, inasmuch as it lessens the duration of pericarditis; but direct proof of the reduction of mortality is not to be obtained from these cases.

9. The abstraction of blood by venesection, cupping or leeches, almost invariably relieved the pain at once, but not permanently. There is no reason to believe that any one form of bleeding relieved pain more effectually than another.

10. Blood-letting never lessened the frequency of the pulse, except when there were signs of the inflammation having abated.

11. The tendency to syncope, in some cases of pericarditis, renders it necessary to be very careful in abstracting blood by venesection.

12. Free venesection for pericarditis does not always prevent the subsequent appearance of serious inflammation in other internal organs.

II. Mercury.

1. The cases in which mercury was given within the first four days, had an average duration less by five days than those in which it was given later.

2. The cases in which salivation was produced within the first four days had an average duration less by two days than those in which it occurred later.

3. It is difficult to determine how much of the benefit was due to the mercury, because all the patients who took mercury were likewise bled, and in almost every instance the two remedies were first employed on the same day.

4. The author is inclined to the conclusion that the benefit was due in greater measure to the bleeding than to the mercury—partly, because the duration of the disease was more abbreviated in those who simply began to take mercury, than in those in whom salivation was produced within the first four days. The administration of mercury coincided with the bleeding, but the salivation did not, and the results are just what might be looked for upon the supposition that the benefit was due to the bleeding, and not to the mercury.

5. If the production of salivation had anything like the marked influence in arresting inflammation, and in promoting the removal of its products, which it is currently believed to possess, the duration of the cases of pericarditis after salivation ought to have been much less than it really was. This is proved by a detail of the cases.

(*a.*) Salivation was not followed by any speedy abatement of pericarditis in sixteen cases.

(*b.*) Salivation was followed by pericarditis in five cases.

(*c.*) Salivation was followed by an increase in the extent and intensity of the pericarditis in three cases.

(*d.*) Friction-sound ceased two days before the mouth became sore in two cases.

(*e.*) Salivation was followed by a speedy diminution of the friction-sound in two cases: it did not cease, however, for some days after.

(*f.*) The pericarditis ceased soon after salivation in two cases: in one of them, however, it had been declining for some days before.

(*g.*) Mercury was given, but no salivation was produced in seven cases.

(*h.*) No mercury was given, nor other treatment adopted, in eight cases.

(*i.*) Cases are detailed exhibiting the occurrence of various internal inflammations during the time that salivation was proceeding. The cases comprise examples of endocarditis, pleuro-pneumonia, pneumonia, pleuritis, erysipelas, and rheumatism.

A conclusion rather adverse to the antiphlogistic powers of mercury having been drawn from the facts narrated, the author next examines the evidence upon which the contrary and more prevalent opinion is based, and infers that the evidence is not satisfactory. In the course of this examination, some remarks are offered upon the necessity for the application of the "numerical method" in therapeutical inquiries; and also upon the difference, and its results, between the practice of French and English physicians, in inflammation of serous membranes.—*London Med. Gaz.*, July 20, 1849.

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17. *Peculiar Forms of Choreic Affections.*—R. B. Todd, M. D., in the *Lumleian Lectures* for 1849, describes a curious affection, of which he has met with two examples in his own practice, and of which five or six have been recorded by Albers of Bremen: the prominent feature of it is the inability to hold a pen and to write for any time. The patient begins to write—writes two or three words—when the hand forthwith is spasmodically extended, the fingers cease to be controllable, the pen falls away from them. If the patient attempt to control his pen hand with the other hand, or if any one else does it for him, the movements become worse, and he suffers excessive pain up the arm; yet all other actions are well done, and the power of the hand to grasp is good. One gentleman thus affected is a man of considerable mental endowments, and he has found it so impossible to overcome the irregular movements of his hand, that he has trained himself to write with his left hand, which he can now do with such facility that he can carry on an extensive correspondence.

There can be no doubt that the impairment of speech, which is sometimes a forerunner of cerebral mischief, and which ought always to be regarded as a warning of such an invasion, is of this character. Emotional excitement will cause hesitation of speech, in many healthy persons: many can do certain things very well if allowed to take their own time; but if hurried and flurried, they are apt to bungle about them very seriously.

In one instance, Dr. T. found well-marked choreic convulsions of the right arm, with disturbed intellect, and gangrene of the toes, associated with extensive colourless softening of the left cerebral hemisphere, involving the optic thalamus.

Allied to the movements of chorea are the fidgets of children, and, perhaps, also those of grown persons. In some children, these fidgety movements are so excessive that the child becomes almost a nuisance in a room. All the muscles are affected; the child incessantly makes grimaces of the most various kinds; every minute he assumes a new attitude; if anything comes in his way, he must handle or touch it: and these irregularities are always the greater when there is derangement of general health. Children thus affected might readily be thrown into the convulsions of chorea by a strong mental emotion.

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18. *Symptoms of Partial Chorea.* By R. B. Todd, M.D. (*Lumleian Lectures* for 1849.)—1. The affection is not symmetrical, that is to say, one side of the body is more frequently affected than both; or, if both should be affected, one is always much more so than the other. In general, this difference of affection of one side remains with that side, whichever it may be; but in rare instances there is a disposition to shift, and for two or three days the right side will be chiefly affected, and then for a longer or shorter period the left side will exhibit most active movements. This tendency to shift calls to mind a prominent feature of certain rheumatic and gouty affections.

2. Of all the movements which accompany chorea, that of the tongue is the most peculiar and characteristic; indeed, I would call it pathognomonic. The

patient protrudes the tongue with a peculiar thrust to the fullest extent of which it will admit; frequently this is done by one effort; at other times, it requires two or three attempts before it can be accomplished. And the subsequent retraction is also peculiar; the tongue is drawn back, supported and guided by the pressure of the teeth, and often very slowly, and with great caution. Sometimes this peculiar mode of protrusion of the tongue is the precursor of the other choreic symptoms; and if we had frequent opportunities of seeing the cases very early, I have no doubt that this symptom would be found more frequently the harbinger of the more extensive affection. I have, from this symptom only, been able to predict with accuracy that an attack of chorea was coming on.

3. The choreic convulsion is frequently succeeded by a paralytic state of the limbs previously convulsed; the convulsive movements cease, and the limbs remain paralyzed; the paralysis is seldom complete, although considerable. When the choreic convulsion had affected one side, the paralysis will likewise affect the same side; it will be *hemiplegic*, and will resemble very closely hemiplegia from diseased brain, for which it is very apt to be mistaken by those not aware of this fact. Not long ago, a boy was brought to my house for me to advise whether the hemiplegic paralysis under which he suffered should be treated by antiphlogistic means, such as mercury, &c. I soon discovered that the case was one of choreic paralysis, and advised steel and shower baths, and exercise of the limbs; under which he rapidly recovered.

In a very few instances, paralysis *precedes* the choreic convulsion; but, so far as my observation informs me, it is then accompanied by the peculiar thrust of the tongue; by this sign I have been enabled to distinguish it.

That paralysis may occur in this way is evidently a fact of the highest practical interest, whilst it is not devoid of importance as bearing upon the pathology of the disease. Nevertheless, I do not find it noticed in any of the descriptions of the disease in the practical works which I have consulted. The previous history of the case, the absence of any other symptom referable to the head, and the gradual mode of invasion of the paralysis, in addition to the peculiar mode of protrusion of the tongue, will always enable the careful practitioner to distinguish this paralysis from that caused by cerebral lesion.

4. The heart is very frequently morbidly affected in chorea; and this morbid affection shows itself, not in any disturbance of the *rhythm* of the heart, which, so far as my observation extends, never is disturbed, but in a derangement of its sounds. A bellows-sound is frequently present, and is either aortic systolic, when it is almost always an accompaniment of the anæmic state of the patient, or, *much more frequently*, *mitral systolic*, or *regurgitant*.

I am surprised that this feature of the clinical history of chorea has not attracted more general attention. It has been well known to me for many years, and I described it in the Croonian lectures on the pathology of rheumatism, which were given by me in this theatre six years ago. But to my friend Dr. Addison, of Guy's Hospital, is due, so far as I know, the merit of having first made public the frequent occurrence of this bellows-sound in chorea.

What is the cause of this sound? is it due to any irregularity in the muscular action of the heart? a choreic state of that, as of the external muscles, whereby the action of the valves is disturbed? or is it caused by a morbid deposit on the mitral valves, which prevents their precise action? or can it, like the aortic sound, depend on the anæmic state of the patient?

I shall answer the last question first. The closure of the mitral valves is the result of the mechanical accumulation of fluid in the ventricle, which presses the valves towards the auricle, their tension being maintained by the chordæ tendineæ: this effect will be produced, no matter what may be the nature of the compressing fluid; a mere colourless state of the blood cannot produce mitral regurgitant bellows-sound; some imperfection, either of the valves themselves, or of their mode of apposition, must exist in order to produce such a phenomenon.

It is plain, then, that the bellows-sound must be caused by some disturbance in the action of the mitral valves. What, then, produces the valvular derangement? Can it be any disturbance of the muscular action of the heart, any

choreic state of the musculi papillares? I apprehend not; for, as the closure of the valves is not accomplished by the action of the muscles, it would not be affected by any such irregular muscular action. Moreover, no such choreic state of the heart's action could take place without its being indicated by a disturbance of the heart's rhythm, which, of course, would be very readily detected.

Hence, then, we cannot resist the conclusion that the mitral bellows-sound in these cases is due to such an organic lesion as prevents the complete closure of the mitral valves during the systolic effort of the heart.

But now we meet with another question not less important. What can have created this morbid state of the mitral valves? It is rare to meet any symptom of heart affection, either preceding or accompanying the chorea; and the valvular imperfection is often overlooked, and only discovered by careful auscultation of the heart's sounds.

The true answer to this question is, I believe, to be found in the fact that many of the patients who suffer from chorea are of a rheumatic diathesis, and that, in consequence of this rheumatic state, they experience an insidious endocarditis which generally affects the mitral valves.

The proof that rheumatic diathesis and chorea are frequently met together, is derived from these facts—that many of the sufferers from the latter malady, when carefully examined, are found to have previously suffered more or less from chronic articular pains, to have sprung from rheumatic or gouty parents, and to exhibit deranged secretions, such as occur in rheumatic states. I have seen many instances of choreic children passing urine of high specific gravity, loaded with lithates, and sometimes precipitating lithic acid in very notable quantity, and for a considerable time. Choreic patients often suffer from rheumatic fever; and, as the subjects of that fever are very liable to its recurrence, so a child who has once had chorea is apt to have it again and again.—*London Med. Gaz.*, April, 1849.

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19. *On Catarrh of the Mouth.*—Dr. Pfeufer opposes the prevalent idea that the appearances of the tongue indicate the state of the stomach, and that its loaded state or perverted sensibility shows the existence of gastric affection. He denies that it undergoes greater changes in the diseases of the stomach than in those of any other part of the body. The stomach may be most extensively diseased by cancer, in which hyperæmia or blennorrhœa may be present, and yet the tongue continue clean, and the appetite good, as also may be the case in chronic inflammation of the organ. The tongue may be loaded, and the appetite lost, in that catarrhal state of the mucous membrane of the stomach termed *gastricismus;* but it is by no means rare to find this not the case. The appetite may be gone, and the tongue be quite clean.

On the other hand, changes may occur in the cavity of the mouth without being at all indicative of disease of the stomach; the tongue may be thick and loaded, an indifference to food exist, and the taste be blunted and pasty, yet whatever the person does take produces no gastric suffering. The affection is, in fact, a *catarrh of the cavity of the mouth.* It may come on quite suddenly under the influence of mental emotion; it accompanies a variety of affections of the mouth and throat, and may be excited by various stimulating articles of diet, or by medicines acting as local irritants. It sometimes passes away in a few hours, and at others lasts for days, and seldom requires treatment, and certainly not the use of emetics and purgatives, which are usually resorted to, the diligent rinsing the mouth with cold water hastening its removal. Occasionally, however, the affection lasts for weeks or months, and then is usually treated by a great variety of medicines as an obstinate dyspepsia; those who can afford it being at last sent to the Spas. These means, proper enough in catarrh of the stomach, are here useless; and with a gargle, composed of a grain or two of corrosive sublimate in a pound of water, the author has several times cured in a few days a disease that had resisted the long train of anti-dyspeptic medication for months. Local sources of irritation, too, must be sought; for it has more than once happened to Dr. Pfeufer to relieve cases, by the removal of some sharp fragments of a tooth, which had been subjected to all the

approved modes of treating *gastricismus*, and had resisted these, as well as long courses of mineral waters and the like! An acute form is also sometimes very obstinate, recurring again and again, and giving rise to loss of appetite. It is often very analogous to nasal catarrh, with which it is sometimes conjoined, and then the affection of the mucous membrane is primary. In other cases, however, and especially when produced by mental emotion, and when it is so often erroneously attributed to "bile," there is apparently a primary affection of the nerves of taste and sensation of the tongue, and then the catarrhal secretion is secondary.—*Brit. and For. Med.-Chirurg. Rev.*, from *Henle und Pfeufer's Zeitschrift*, Bd. vii. 180.

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20. *Angina Pharyngea.*—M. Velpeau is of opinion that there are distinctions in this disease, based on the different tissues affected, which it is important to bear in mind. In the first and more frequent variety, the free surface of the mucous membrane is inflamed, the inflammation spreading over the whole pharynx. In a second, the inflammation occupies the tonsils and the mucous membrane in all its reduplications. The third variety is formed by the inflammation of the cellular tissue covering the external surface of the tonsils. In the first form the disease comes on suddenly, but rarely lasts long. It produces redness, but not swelling, and is frequently unattended with fever. It may be often arrested by local application, as alum; and if general treatment, such as bleeding, vomiting, or purging, is indicated, the disease is generally cured in two or three days. In the second form, alum would only exasperate the disease, and general means only slightly modify it. Left to itself, it may last from six to twelve days, often terminating by suppuration. Emetics are only useful in assisting the abscess in breaking. It is an affection of frequent occurrence, but is rarely dangerous even when both tonsils are much swollen.

The third form, *cellular angina*, is a more serious affection. A dull, permanent pain comes on, which at first, not extending to the inner side, does not interfere with deglutition. Owing, too, to the seat of the disease, the tonsil does not swell, but the whole of the affected side, tonsil, and soft palate, is raised by the swelling pushing up the various tissues. There is inflammation also of the corresponding cervical region, the parotidean and subhyoidean depressions becoming filled up with a red, tender, doughy tumefaction. This form of the disease may last from eight to thirty days, and terminate by any of the ordinary consequences of phlegmon. Leeches to the angle of the jaw, and other means of an antiphlogistic character, are indicated, and not unfrequently recourse is obliged to be had to the bistoury to prevent the injurious burrowing of matter; but the danger of wounding some of the important parts situated in this region often obliges us to hesitate. M. Velpeau alludes to a case in which he was about to open an abscess by incision into the pharynx, when, owing to the objections of the patient, he was induced to apply large flying blisters to the angle of the jaw, at the base of the inflamed part, and this was attended with the most complete success in dissipating the inflammation.—*Brit. and For. Med.-Chirurg. Rev.*, from *Gazette des Hôpitaux*, 1849, No. 12.

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21. *Dropsy after Scarlatina.*—Dr. F. J. Behrend, of Erlangen, has published very valuable observations on dropsy after scarlatina, in the *Journal für Kinderkrankheiten*, for March and April, 1849. The following are the conclusions: 1. Two forms of dropsy occur after scarlet fever, the *nephritic* and the *anæmic*. 2. These distinctions only point out the original evil, which is the cause of the dropsy. 3. In *hydrops nephriticus*, the main affection is a highly congested state of the kidneys, even proceeding to inflammation. 4. This congestion of the kidneys is just as much a specific effect of the scarlatinal poison, as the cutaneous congestion and eruption. 5. As a consequence of the congestion, there is exudation into the kidneys; and, from rupture of capillary vessels, some effusion of blood, which tinges the urine of a dark chocolate-colour. 6. The presence of albumen in the urine is partly the result of exudation, partly of the mixture of blood. 7. The small vessels and tubuli of the kidney are partly compressed, partly obliterated, by the exudation, so as to give a granular appearance: the capillary vessels of the cortical substance are partly empty, partly filled with

exudation-corpuscles, without red blood, which produces the pale-yellow colour of this substance. 8. The tubular substance undertakes the whole function of the kidney. A more powerful flow of blood and urine to this part produces within the tubes a removal and reproduction of epithelium (analogous to the eruption and desquamation in the skin), and finally a discharge of albumen with the urine. 9. The impediment to the function of the cortical substance of the kidneys—the modification to such an extent of the function of the tubuli—prevents the full elimination of urea from the blood. 10. Being retained in the blood, the urea mixes with it; and, in conjunction with the scarlatinal poison, produces nervous symptoms of a narcotic character: delirium, coma, sopor, etc. 11. To this mixture of urea with the blood, as well as to the endeavour to eliminate the scarlatinal poison by the skin, is the watery effusion to be ascribed: the effusion into the serous cavities, is entirely a result of the presence of urea in the blood. 12. The danger attending the dropsy depends on its situation, and on the amount of organic activity which is present. 13. Effusions into the serous cavities are especially dangerous, while cutaneous dropsy is of less moment; and, of the effusions into serous cavities, that into the peritoneal cavity is less dangerous than those into the cerebral and pericardial cavities. 14. The greater the activity of the organism, the less is the danger; for this shows that the blood has not retained any considerable amount of urea. 15. So long as the urine gives evidence of the presence of blood, with epithelium, besides albumen, and has an acid reaction, the danger is less than when it is clear, phosphatic, and at the same time highly albuminous, as this indicates an extensive and progressive degree of poisoning of the blood. 16. The indications of treatment, in cases where the urine contains blood and albumen, and is acid, are to diminish the congestion of the kidneys, and to promote the full elimination of urea. An antiphlogistic and saline treatment is here indicated. 17. As soon as the urine, while it contains albumen, becomes of a pale yellow colour, and ceases to have an acid reaction, the antiphlogistic and saline treatment is improper. It is then necessary to counteract the poisoning of the blood, and to increase its plasticity. Iron and tonic medicines are here indicated. 18. The same treatment is necessary, when a weakly, anæmic child has been seized with dropsy soon after a slight attack of scarlatina. The urine here contains little or no albumen; and the plasticity of the blood is so low, that death will result, if it be not increased by the diligent use of tonics.

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22. *Hydrophobia.*—Dr. Christison read, before the Med.-Chirurg. Society of Edinburgh (May 16), a communication from Dr. Lucas, of Dalkeith, describing a case of hydrophobia which had occurred there.

The most interesting points in the case were thus summed up by Dr. Lucas: 1st. That eight weeks elapsed between the infliction of the bite and the invasion of hydrophobia. 2d. The wound healed, and did not subsequently become irritated. 3d. With the exception of spasm of the respiratory muscles, no muscular effort was observed independent of volition. 4th. The physiological manifestations consisted in an intense exaltation of sensibility of the cutaneous surface, and of the reflex system of nerves. 5th. The psychological phenomena were a highly developed antagonism between the morbid emotional and normal reflex faculties. 6th. Death took place by exhaustion consequent upon the direct and sympathetic excitement of the nervous system.

Dr. W. T. Gairdner had performed the post-mortem examination, and gave a verbal account of the appearances observed. There was some ecchymosis on the surface of the pleura, likewise in the mucous membrane of the pharynx, and among the muscles of the neck. The right side of the heart contained a small quantity of frothy blood, and a large amount of air; and there was no evidence to show that this appearance was attributable to putrefaction. Dr. G. had seen a similar collection of air in the heart of a patient who had been poisoned by carbonic acid gas. The nervous system had been most carefully examined, especially the origins and course of the eighth pair, but no evidence of inflammation or structural lesion had been detected.

Professor Dick, of the Veterinary College, had long considered the hydrophobia of the human subject a disease of the imagination. It was generally

found, upon inquiry, that the patient, after being bitten, became exceedingly apprehensive as to the probable consequences. A policeman, who died in the Royal Infirmary, twelve years ago, had, it was said, neither cared for the bite nor feared its results. Professor D. had himself made careful inquiry regarding his case, and found that the man had been very much alarmed, and had been constantly taking medicine by way of antidote. In the Dalkeith case, although the patient had made no allusion to the bite, he thought it not improbable that imagination was at work. The patient seemed to endeavour to deceive himself, to banish the fearful idea from his mind; yet, though he dared not himself suggest the nature of his disease, he made continual inquiries of those who stood about him, and manifested concern for his sufferings. It was hardly possible that his mother could conceal the truth from him, or that the boy could himself be ignorant of it. Upon this subject, Professor D. proposed to satisfy himself by private inquiries. If, as he believed, the disease was really one of the imagination, he need not point out how useless or how mischievous many of the vaunted remedies must be. With the disease of the lower animals, termed rabies, he was of course familiar. Twelve years ago, it was very prevalent in Edinburgh; he had then seen 120 cases in fourteen months. From that time till recently, he had scarcely seen a case at all; but within the last six weeks he had seen a rabid dog in Glasgow; and some rabid cattle in a Lanarkshire dairy. He believed it not improbable that the disease might soon prevail extensively. It was remarkable, and constituted an argument against the communicability of the disease from the dog to the human subject, that there was no fear of water manifested by rabid animals. Besides, the rabies of dogs was sometimes an epidemic; dogs contracted it without being bitten, and there was not sufficient evidence that a bite ever produced it. The morbid appearances in the dog were ecchymosis about the upper pharynx, and in the nasal cavity, with vascularity extending over the Schneiderian membrane, and over larynx, pharynx, trachea, and œsophagus.

Dr. Bennett thought that the symptoms of hydrophobia clearly pointed out a lesion of the functions presided over by the eighth pair of nerves. It was true, that structural lesion had not been observed in this case, either at the origin or in the course of the eighth pair; it must, however, be recollected, that in these excito-motory diseases, structural lesion was not essential. He quite believed that symptoms like hydrophobia might be induced by fright; a recorded case had proved that a bitten man might even die while the dog that bit him lived. There was, however, no doubt that the disease termed hydrophobia could be communicated from animals to man, and Magendie had caused a dog to die rabid, by inoculating it with saliva from a human subject suffering from hydrophobia.

Dr. Gairdner alluded to the experiments of Dr. Hartwig, of Berlin, as tolerably conclusive evidence, that rabies could be communicated, at least among the lower animals, by inoculation.

Professor Dick attached little importance to Hartwig's experiments, because, although he had laboured at the subject for five years, his inoculations only took effect in very few cases. In similar experiments made in Edinburgh, Professor D. had been uniformly unsuccessful. So convinced was he that the disease was not to be propagated in this way, that he took no extraordinary precautions in handling rabid animals, and had once allowed the saliva of a rabid dog to rest upon a sore upon his hand without any unpleasant consequences.

Dr. Christison had formed a very different estimate of the value of Hartwig's labours, which he thought set this controverted subject for ever at rest. Hartwig had, in five years, made fifty experiments upon the inoculation of canine rabies, using in different experiments different fluids, such as the blood, mucus, and saliva of the rabid animal. In fourteen of these inoculations, he had transmitted the disease from one animal to another, and had succeeded more uniformly with the saliva than with the other fluids employed. It was true that he had failed in some instances, but such failures did not invalidate the results obtained in about one-fourth of his experiments; as well might it be argued that, because vaccination sometimes failed, it was, therefore, impossible

to communicate the vaccine virus from child to child. Dr. C. had, many years ago, in Paris, witnessed a series of experiments on the inoculation of rabies. They were performed at the Combat des Animaux, by some hospital "internes," under the direction of some able physiologists. It was found that, when blood was used, the inoculation did not take effect; by far the most effectual medium was the "barve," the peculiar froth which collects about the mouth of the rabid dog. By using this fluid, the French experimenters managed to induce the disease in several successive experiments, and in fact to keep up a *stock* of rabid animals for several months. It was stated by Hartwig that dogs were subject to other diseases resembling rabies; but there was one symptom of the true disease which was never observed in its spurious forms. He alluded to the changed character of the animal's bark—a peculiar, checked, short, sharp, anxious howl. Hartwig, who, as head of the Veterinary College at Berlin, had immense opportunities of observation, laid great stress upon the importance of this symptom; and in the Parisian experiments, the peculiar bark of the rabid dog had been remarked both by the late Dr. Cullen and himself. He suggested to Professor Dick, that, in some of the experiments performed in Edinburgh, and in which negative results were obtained, the animals might possibly have been affected with some of the diseases simulating rabies.

Professor DICK proposed to repeat his experiments when opportunity presented itself, and would feel glad that they should be witnessed by members of the Society. He well knew the bark of the rabid dog, described by Professor Christison, and, whenever he heard it, he could at once pronounce that dog to be rabid, even without seeing it.

The President had, twelve years ago, occasion to treat the only case of hydrophobia which had been seen in the Royal Infirmary for forty years. The patient was the policeman, to whose case Professor Dick had alluded. A very prominent symptom was the ejection of saliva by hawking or spitting, and he presumed that the "pretty copious salivation" described by Dr. Lucas, in the case of the boy at Dalkeith, was of the same description.—*Ibid.*

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23. *Spasm of the Glottis—Change of Air as a Remedy.*—Mr. JOHN ROBERTON, in a paper in the *London Medical Gazette* (Jan. 1849), states, that having had an opportunity in the course of practice to treat a number of cases of this always alarming, and somewhat fatal malady, he was led, by the little benefit derived from medicines, to venture on the employment of free exposure to a cool, dry atmosphere, as one of his principal means, more especially in aggravated forms; and, although he cannot affirm its invariable success, in no instance has it proved injurious. It would appear from the cases he has given, that the success of this method has been very considerable,—in a large proportion of instances, decisive. Of course, the exposure has been had recourse to *with due caution*—a condition necessary, however, in the employment of every kind of remedy possessed of power.

Mr. Roberton relates twenty-one cases of the disease which have come under his observation. In reference to these cases, the first thing to be noticed, says Mr. R., is the period of the year at which the crowing commenced—namely, from November to April. Now, as the patients were all of a rank above the labouring class,—had nurses and nurseries,—they would probably be more within doors, be more secluded from the external atmosphere,—in a word, would spend a more artificial life, than they do in the warmer season. Such infants, assuredly, are habituated to a very different mode of living, when compared with those in a lower station, who are to be seen abroad almost in all kinds of weather, daily, throughout the year. Dr. R. would not be understood as maintaining that this nursery seclusion explains why the complaint so commonly occurs in winter and spring; but the fact that it is rare in the families of the working classes, seems in favour of such a conclusion.

The age at the accession of the disease was in most from about the fifth to the twelfth month. Above twelve months, there were only three cases, and the highest of these is fifteen months.

In connection with the ages of the infants, is the *kind* of teeth the irritation from which may be regarded as perhaps the chief cause of the disease. In

seventeen, the irritating teeth were the incisor; in three, the bicuspid; and in one, the canine.

With reference to the influence of sex in predisposing to child-crowing, this probably is little if anything. The proportions in the foregoing instances, are nine females to twelve males. It is otherwise, however, seemingly with the mortality; for in eight cases of death which have come under Dr. R.'s notice during the last twenty-three years—the first happened in 1825—two only were females.

Concerning the treatment, Dr. R.'s remedies are few and simple. In all the infants there was derangement of the first passages; the digestive power was more or less impaired, and the motions were pale or otherwise discoloured, and of a fetid odour. To correct this, he gave rhubarb and mercury, with chalk, in small doses, and an occasional teaspoonful of castor oil. Leeches to the head he has rarely advised, unless when the complaint was complicated with convulsions; and even then only when there were drowsiness and heat of scalp. The diet was regulated with strictness, and Dr. R. is of opinion that a spare diet is of incomparably more importance than any articles of medicine.

Change of air (that is, change to a cool, bracing atmosphere), Dr. R. says, does good by soothing the nervous irritability, lessening the activity of the circulation, and producing sleep; while at the same time it invigorates the powers of digestion. The change of air acts beneficially much in the same manner as it does in hooping-cough, only it is more generally applicable in child-crowing, is attended with less risk, and is more speedily and certainly efficacious.

The plentiful use of cold water in the form of sponging, was rarely omitted night and morning. In the treatment of one severe and alarming case, in particular, this was found of service, added to atmospheric exposure, as a means of allaying a remarkable degree of irritability.

Inflamed gums were scarified, and the operation repeated on a return of pain and heat, perhaps every second or third day. A sabre-pointed, rather blunt penknife, was the instrument preferred. In order to its safe performance, there is a precaution worth mentioning: though a trifle, it is not to be altogether despised. An infant under the disease is irritable, apt to cry vehemently, and so to bring on a spasm. There would seem to be an unnatural accumulation of irritability, which, when the child is suddenly provoked, is nearly certain to bring on crowing. Let the operator proceed at once to pull back the head, and deliberately scarify the gum, and the almost certain consequence will be either a fit of spasm or a convulsion. In one case, Dr. R. had nearly caused a fatal spasm by scarifying the gums, without first making the child *slowly* expend its irritability in free crying. The precaution referred to, consists in gently drawing back the head, and that is sure to produce crying; then letting alone for a little, and again repeating the feint, until there has been free sonorous crying. Now, the excess of irritability being expended, scarification can be safely performed.

The same precaution is applicable in forcibly administering medicine by the spoon. A sudden, incautious attempt to give medicine in one case, produced a convulsion.

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24. *Coffee, as a Cure for Hooping-Cough.*—Various medicines have from time to time been brought forward as specifics in hooping-cough; and some of them we have tried. To quinine, salicine, arsenic, and oxide of silver, we have given a fair trial in a considerable number of cases: and the result of this experience is, our belief that all of them, except the last named, possess some power in checking the disease, when it has gone on for some time, and is marked by periodicity. When the hour of the recurrence of the fits comes to be accurately foretold, all of the above-named drugs given in full doses in anticipation of the attack, postpone, or entirely prevent it. In the early stages, or later, where there is some amount of bronchitis, the free use of stimulating embrocations, with occasional expectorants, and stomachics, and alteratives (such as a powder composed of cusparia, trisnitrate of bismuth, and rhubarb), are the means we trust to. When the cough assumes a distinctly periodic character, we recom-

mend a trial of antiperiodic remedies and change of air, both of which measures, in many cases, prove of signal and speedy benefit.

From Pereira's summary of the therapeutic uses of coffee, it is not unlikely, however, to exercise some control in hooping-cough. "It has," says Pereira, "been employed as a febrifuge in intermittents; as a stomachic, in some forms of dyspepsia; as an astringent, in diarrhœa; and as a stimulant to the cerebro-spinal system in some nervous disorders." Floyer, Dr. Percival, and others, have used it in spasmodic asthma; and Laennec says: "I have seen several cases in which coffee was really useful." *Pereira*, vol. ii. ed. 1842, p. 1441.

The recommendation of coffee, in hooping-cough, seems decidedly to merit attention. Dr. Jules Guyot, who advocates the use of the remedy, writes thus, in the *Union Médicale*, for 24th April, 1849: "*Café à l'eau*, hot, and well sugared, in suitable doses, taken four times, or oftener, daily, will cure, in from two to four days, the most obstinate cases. For a child of two years, the dose is a teaspoonful; for a child of four years, a dessertspoonful; and for an elder patient, a tablespoonful. To obtain a rapid and permanent cure, it is necessary to conjoin with the coffee treatment, a diet of fried and roast meat, taking care to mince it, if the child cannot masticate it sufficiently. The quantity of milk used ought to be diminished; and farinaceous food, confectioneries, and fruits, must be entirely prohibited."

The alleged specific power of coffee in hooping-cough, was accidentally discovered by observing the following case:—

A child, of four years old, under rigid dietetic treatment for measles, was seized with congestion of the lungs, against which energetic antiphlogistic treatment was put in force. When Dr. Guyot was called in, death seemed imminent from violent paroxysms of cough, which induced such alarming suffocation and syncope, as to cause the patient to appear to be actually dead. Some spoonfuls of strong beef-tea, with some spoonfuls of sweet and hot infusion of the lime-tree, were prescribed. The child passed the night without fainting. On the following day, the same infusions were continued, and in addition, there was given a little bit of grilled and finely minced mutton, with the view of restoring strength as rapidly as possible; but a severe fit of coughing came on, which terminating in vomiting, caused ejection of the food: recourse was again had to the beef-tea, which provoked a similar fit of coughing, and was ejected. In these circumstances, with death apparently impending, a teaspoonful of coffee was given after each teaspoonful of beef-tea. Not only was the beef-tea retained; but, to my great surprise, the cough likewise ceased. Two hours afterwards, the child took with relish a little bit of hashed cutlet, followed by a teaspoonful of the coffee: the food was not ejected, digestion went on naturally, the night was passed in comfortable sleep, there was no more cough: and, in truth, the child was saved. On the following day, the treatment was continued, and there was a continuance of a like satisfactory state. On the third day, however, the relations omitted the coffee, when the cough returned, after the first meal, with all the characteristic violence of well-formed hooping-cough; and this state continued during the day. On the fourth day, when the coffee was resumed, the cough disappeared. During forty-seven days the coffee was persisted in, when the cure was distinctly complete.

The case was furnishing subject of serious reflection, when Dr. Guyot met, in a public conveyance, M. Bouju, ex-notary of Franconville: he told him that he had been obliged to have double doors for his study, to keep out the terrible and incessant noise caused by his two children with hooping-cough. Dr. Guyot detailed the case above narrated; and he cured both his children in four days by means of coffee. He has since tried the remedy successfully in above sixty cases. The efficacy of coffee, in hooping-cough, seems to show that the seat of the disease is not in the bronchial tubes or larynx—nor in their vascular or nervous network—but exclusively in the digestive organs, and especially in the pharynx and stomach. The cough and convulsive movements of the larynx are excited by a pruriginous irritation of the pharynx; which, again, probably depends on some special affection of the stomach."—*Lond. Journ. of Med.*, Aug., 1849.

25. *On Intermittent Fever in Young Children.* By M. Valleix.—On looking over those authors who have treated, either in separate works, or in notices in Medical Journals, of intermittent fevers in young children, and children still at the breast, we are astonished at the paucity of our knowledge on this subject. In a paper published in the *Union Médicale*, of January 1848, entitled *De La Fièvre Intermittente chez Les Jeuns Enfans, &c.*, and which is of much higher value than all that had preceded it on the same subject, the author, Dr. Ebrard, of Bourg, comments on the silence of medical writers in respect to this question; stating that M. Bouchut is almost the only one who has furnished some remarks on this disease, based on the result of the cases which had fallen under his notice. In general, those French authors who have written on the disease in young children, have pursued their investigations at Paris, where they have rarely had the opportunity of seeing intermittent fever in children, and they have therefore very generally regarded the disease as a complication of hooping-cough.

The most surprising of all is, however, the negligence evinced in this respect by writers who have treated specially of intermittent fever, and who, from their acquaintance with the disease in the countries and districts where it is endemic, must necessarily have had ample opportunities of observing it in young children. But even here we find nothing beyond a few general considerations on the transmission of the fever from the mother or nurse to the child, and at most a few vague directions regarding the treatment of the disease in young children. Yet the more we reflect on the subject, the more clearly do we recognize the extreme importance of acquiring a correct knowledge of intermittent fever, especially when occurring in infants at the breast, for it appears highly probable that a number of young children sink rapidly under this disease, before its existence had been suspected by the physician.

I have not myself had an opportunity of observing intermittent fever in children at the breast. I subjoin a case which M. Louis has communicated to me, and that I purpose making the basis of some observations regarding the diagnosis and mode of treatment of the disease at that early age.

1. The subject of this case was a boy aged five months. He was a well-grown child, rather pale than otherwise. The mother, who suckled him, had never had intermittent fever; his health had been good up to the time of the attack. In the beginning of the month of July, the child was taken to Havre, where he remained a week, during the whole of which time the weather was fine, and he was not exposed to any apparent cause of fever.

On the 11th of July, the evening before his removal from Havre, he had a well-marked attack of fever, viz., alternation of shivering and heat, succeeded by perspiration: the following day there were no traces of fever; the child manifesting the symptoms of health, and all the functions being in a normal condition.

On the 13th, the attack recurred while the child was on the journey to Paris. On the 14th, M. Louis first saw him, and found the child lively and in apparent health. An occasional alteration in the tones of the voice, and a slight and occasional cough, being the only symptoms observed. Auscultation and percussion indicated nothing abnormal. On the evening of the 15th, the third attack occurred, and was marked by a fit of shivering which continued half an hour, and was succeeded by heat and moisture. Examination of the region of the spleen showed that the latter did not extend beyond the ribs. The mother was ordered to take three pills of sulphate of quinine, of two and a half grains each, and on the following day to increase the dose to four pills.

On the 16th, the attack recurred four hours in advance, and was less long and less violent than the preceding one. From the 16th to the 21st, five pills, of two and a half grains of sulphate of quinine, were given daily. The fever retained its tertian form, and the attacks were well marked, but while they recurred four to five hours in advance, they at the same time diminished in intensity. On the 21st, there were two attacks, separated by an interval of complete apyrexia. (The same treatment continued.) From the 22d to the 27th, the fever assumed the quotidian form—the attacks were well marked, and the intervals quite free from symptoms of fever. On the 22d, the child was removed

into the country, to an elevated and healthy district, about twelve miles from Paris, and from that day the mother discontinued taking the sulphate of quinine. On the 27th, M. Louis found the child free from fever, the skin cool, the flesh firm; but the face of a straw-coloured hue, but no abnormal coloration in the sclerotic. The spleen extended beyond the ribs four finger breadths. The mother was ordered to resume the pills, and to rub the child with an ointment containing one-tenth of sulphate of quinine. Two and a half ounces of this ointment were to be used in the course of the day, that is to say, about fifteen grains of the salt.

The two next attacks were respectively much less violent than the preceding. (The ointment was continued morning and evening, and an injection ordered, containing one grain of sulphate of quinine with half a drop of laudanum.)

The child retained *some* of the injection, and two days after its first administration the fever ceased entirely. The treatment was continued six days after the last attack.

This case appears to me to present many points of interest. In the first place, we have intermittent fever in the child without the disease being transmitted from the nursing mother; and here the question arises, If the fever were produced by a sojourn on the seashore, why should the mother escape, and the child alone be attacked, at an age when it would appear, from the evidence of most writers on intermittent fever, that the disease is less common than in more advanced life? In fact, after considering the case, we are led to conclude, that intermittent fever may occur in children at the breast, as well as in adults, without any appreciable cause. The symptoms presented in M. Louis' patient differ in no way from those ordinarily observed. The cold stage never lasted more than half an hour. The spleen did not extend beyond the ribs, until after many fits. M. Ebrard has found, in all cases in which he was able to make a satisfactory examination, that the spleen extended below the ribs after the fourth fit. But may not the augmentation of volume have been so inconsiderable at first as to prevent its detection below the false ribs? Percussion presents the only satisfactory means of deciding this point; and I do not believe that it would be attended by as great a difficulty in the case of young children as is generally supposed; for as the walls are very thin at this early age, the differences of sound will be proportionally well marked. The course of the disease seems alone to have presented some peculiarities; for here we have a well-marked tertian converted into a quotidian form of fever, after the occurrence of two fits in one day, separated by an interval of perfect apyrexia.

The most interesting point in the whole case, is the mode of treatment adopted; for, although there is no novelty in giving to the nurse the specific of the disease from which a child at the breast is suffering, it is not common to adopt such a course where the nurse is herself well. The effect of the sulphate of quinine on the child, in this case, is very evident, and no less remarkable is the simultaneity of the advance of the attacks, and the diminution of their intensity. Are we to attribute this effect to the action of the sulphate of quinine? The question does not admit of a definite reply; but there is a probability of such being the case, from the fact of the change having succeeded immediately on the administration of the medicine. It must, however, be observed, that this indirect treatment was only attended by an imperfect result; and it was not until after the child had been removed to a purer and clearer air, and frictions of sulphate of quinine had been combined with the treatment adopted for the mother, that a cure was effected. Although I have some doubts regarding the amount of benefit derived from frictions, I do not agree with M. Ebrard, in considering that they are indicated only in particular cases, but am disposed to believe that their effect is decidedly beneficial, when they are applied of a strength proportionate to the age of the patient. The question of the administration of this febrifuge as an injection for children at the breast is one of great importance, owing to the difficulty of administering quinine to children by the mouth. M. Ebrard objects to these injections, on the score that they cannot be long retained in the intestines; and, although this is undoubtedly true to a certain extent, the case before us seems to prove that they can be tolerated sufficiently long to produce some beneficial result, and I therefore think that the

attempt to administer them should never be neglected. Besides these means, and the administration of the medicine by the mouth, intermittent fever may be reduced in young children by the employment of baths of cinchona, &c. M. Ebrard recommends the administration of sulphate of quinine in an infusion of coffee; but we should certainly feel some hesitation in giving an infant at the breast the quantity (one drachm) that he recommends for the purpose; and before we would venture on such a course we must receive some further evidence regarding the efficacy of a means which, it must be confessed, would more fully than any other substance conceal the bitter taste of the medicine.

The difficulties attending the treatment of the intermittent fever in children of a more advanced age are even greater than those presented in the case of infants at the breast; for when the child is old enough to recognize the taste of the quinine, under whatever form it may be disguised, the mode of treatment is attended by very great embarrassment.

M. Ebrard has observed in a certain number of cases that intermittent fever is often accompanied by more or less violent convulsions. The most treacherous form is, however, that in which convulsions constitute the sole character of the fits, and here it is of the utmost importance to ascertain whether there is a regular intermission in their occurrence, since, if such be the case, the treatment is plain.—*Monthly Retrospect*, April 1849, *from L'Union Méd.*, Nos. 120, 121.

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26. *Melæna in Children.*—M. Rilliet, one of the authors of the classical work on the "*Diseases of Children*," takes the occasion of two cases of intestinal hemorrhage in children, which have come under his notice, to furnish a summary of what is known upon the subject. The cases he relates are unique, inasmuch as they are examples of this rare disease occurring in twins. The first child, though not large, was well formed, and had cried strongly after birth. The meconium had been discharged by castor oil; the child had sucked, and seemed in all respects doing well, when several hours after birth it passed two or three stools wholly composed of blood, and became deathly pale and cold, and was unable to swallow. It cried, but there was no vomiting or convulsion. Cold compresses were applied to the abdomen, the warmth of the extremities being maintained; rhatany was employed, both in injections and external applications, but the former being always returned with blood, the latter were alone continued. The child gradually rallied after six bloody stools had been passed. While this child yet continued in an alarming state, the other twin was seized with vomiting and purging of blood, and decoction of rhatany was in the same way applied to its belly. It recovered, though the bleeding continued more obstinate. Both children remained well, though long continuing exceedingly pale.

Different authors have ascribed the affection to various causes, but an analysis of the published cases leads Dr. Rilliet to doubt the efficacy of most of those assigned, e. g., the condition of the health of the parents, the nature of the labour, the too early division of the funis, the weakness or plethoric state of the child, the presence of irritating matters in the intestines, external violence, or the rupture of vessels; and although the affection usually occurs at from the first to the fourth day, it has been met with as late as the sixth, eleventh, or twentieth, boys seeming more liable to it than girls. Dr. Rahn-Escher, of Zurich, believes that much depends upon hereditary influence, a diseased state of the digestive organs being communicated from parent to child. This view would seem to be best supported in those cases where the parents also suffer from hemorrhages, or where several of their children do so simultaneously or successively. Billard states that the majority of fifteen children dying from it, were remarkable for plethora, but the experience of others does not bear out this view. Numerous pathological observers agree in stating that there is no important vascular lesion, the mucous membrane being sometimes not more injected than natural; others have found the abdominal veins gorged with blood, and the mucous membrane softened and reddened. The naturally injected state of the intestinal tube in the child may act as a predisposing cause when there is atony of its vessels, or obstruction to the abdominal circulation.

The difficulty with which respiration is established at birth, especially if the lung is incompletely dilated, may exert an influence.

The bleeding in most cases has followed the meconium, but unpreceded by any premonitory symptom. It is usually abundant and frequent, rich in colour, and either fluid, or in part coagulated. Hæmatemesis, though more rare, may yet be abundant; and Etlinger gives a case in which a pound of blood was discharged by vomiting and stool. Sometimes the hæmatemesis is more abundant than the intestinal hemorrhage, but it is always accompanied by the latter. The hemorrhage may attain its maximum in twenty-four hours; but it may be prolonged to the third or fifth day, and in very rare cases to the tenth even.

Of 23 cases in which the issues have been recorded, 12 recovered and 11 died. In 9 of the twelve recovery seemed complete, but in 3 the constitution was deteriorated. In treating the disease, sometimes mere demulcents, at others astringents, the mineral acids, and the internal use of cold, and in others applications to the belly and enemata, have been tried in different cases. M. Rilliet believes that the best treatment consists in the free exposure of the child to the air, the keeping its extremities warm at the same time, the application of astringents to the abdomen, and the careful administration of nourishment, or, if the child's condition requires it, of stimuli.—*Brit. and For. Med.-Chirurg. Rev.*, July, 1849, from *Gazette Médicale*, 1848, No. 53.

27. *On Cephalæmatoma.*—M. Chassaignac believes that whatever operation is performed for the relief of this affection, it proves very hazardous to the infant, and he takes the occasion of a recently occurring case, which he watched closely during life, and examined after death (from other causes), for drawing attention to the remarkable activity of the absorbent power at this age, and to the mode in which Nature thus operates a spontaneous cure. The sanguineous effusion gradually becomes encysted, though for a few days the blood is in direct contact with the bone and periosteum; an organic membrane separated into two layers, and which afterwards takes on all the characters of periosteum, then surrounds it, and the absorption proceeds. In proportion as the quantity of effusion diminishes, the osseous rim or border which surrounds it also diminishes in diameter, by reason of a double simultaneous action, viz., resorption at its external circumference, and a concentrical reproduction at the inner one. Very voluminous tumours in this way disappear; and so great is his fear of exciting suppuration in them, that M. Chassaignac strongly advises all interference to be withheld, save in the extremest cases.

M. Debout agrees with M. Chassaignac, that in the great majority of cases absorption will take place during the first six weeks of life; but after this period, sometimes a serous cyst is formed, containing a reddish fluid, very like that found in mammary cysts the results of contusions. This cyst generally inflames and suppurates, giving rise to necrosis and fever, which may be prevented by opening the cyst. This operation, however, may be followed by erysipelas, or the formation of abscess, and M. Trousseau's procedure offers the greatest security against these accidents. With a narrow bistoury, so held as to cut from within outwards, he makes a puncture at the lower part of the tumour, and endeavours by pressure to empty it of its entire contents, and then applies strips of diachylon and a bandage, so as entirely to exclude the access of air. In eight or ten days these are removed, and all is found to be doing well.—*Bulletin de Thérapeutique*, t. xxxv. pp. 448—55.

Dr. Vogler, writing upon this subject, observes, that he is an example of how careful medical men should be in drawing general deductions from even a quarter of a century's experience. Thus, a very short time since, he published a paper, in which he stated that, during this space of time, he had never had occasion to open a cephalæmatoma, having always succeeded in dispersing the tumour by lotions of sal ammoniac, alcohol, and water, in from three to six weeks. Yet since then has he, in the course of only one year, met with three cases in which he felt called upon to open the tumour. In the first case, he did so, because a severe ophthalmia, in a child but a fortnight old, forbade the use of wet applications. After the blood was discharged, suppuration was set up, but led to no bad consequences. The second case occurred in a child half

a year old, apparently as a result of contusion. The swelling had all the appearance of a deep-seated abscess, but on an incision being made pure blood flowed out. A somewhat tedious suppuration followed, but all did well. In a third case (æt. 15 days), the swelling was very tense, and as the parent neglected applying the lotion, the author opened the tumour and discharged the blood. Very insignificant suppuration followed.—*Brit. and For. Med.-Chirurg. Rev.*, July 1849, from *Medicinische Zeitung*, 1849, No. 13.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL SURGERY.

28. *Repair of Fractured Bone.*—Mr. James Paget, in a recent course of lectures delivered at the Royal College of Surgeons, expresses his conviction that the description drawn by Dupuytren and others, from the examination of fractures in dogs, rabbits, birds, and other animals, cannot be applied without great deductions to the case of fractures in the human subject. True, he says, as the pictures are of the cases of the animals examined, they are exaggerations of the process in our own case. With a few exceptions, all that is written in these accounts of external and internal, provisional and definitive, callus, of the formations of cartilage and bone within the medullary tube and beneath the periosteum, can be traced only, as it were, in rudiment in the fractures of the human bones.

From an examination of a great many specimens, he is convinced that, in the ordinary repairs of simple fractures in the human subject, the reparative material, or callus, is merely inlaid between the several fragments: it fills up the interspaces between them and the angles at which one fragment overhangs another; but it does not encircle or ensheath them, in the manner implied in the description of provisional callus; nor is it in any considerable quantity, if at all, deposited either beneath the periosteum or within the medullary tube. In birds, dogs, and other ordinary subjects of experiments, the formation of a provisional, or, as it may, perhaps, be better called, an *ensheathing* callus, is usual. It is illustrated by numerous specimens on the table; yet even in animals it is not constant. To obtain what would be called good specimens of provisional callus, the injuries must be inflicted upon young animals; and among these I cannot but suspect that particular instances have been selected for description, —those in which less callus was formed, having been put aside as imperfect instances of repair, though, in truth, they may have displayed the more natural process.

For fractures in the human subject, the evidence that union is accomplished by the reparative material being placed between, not within and around, the fragments—*i.e.*, as an intermediate, not an ensheathing callus—this evidence may be obtained by the examinations of such fractures, even long after they are completely healed. In as many as you like to examine, you will find the new bone formed exclusively between the fragments. Whether they were in apposition, or nearly so, or wide apart, still there is no appearance of new bone being formed on the outer side of any fragment,—I mean on that side which is turned away from the other fragments. And this is the case even in those instances in which there is so much displacement of the fragments, and so much distortion, that we can hardly suppose the repair to have proceeded very quietly. Neither, in any of these, do you find new bone within the medullary tube. It may be objected by some to these specimens, that the fragments were once ensheathed and blocked up with callus, and that it has been since absorbed. But this is not probable, seeing that in many cases there remain, on the outer surfaces of the fragments, certain marks of their original form and slight irregularities. In one of the specimens which I present,* we have traces of the healing of a long fissure, which appears now as a sunken groove, making it nearly certain that no new bone was formed over it. In another, is a detached

* Museum of St. Bartholomew's Hospital, ser. 3, C. 5.

piece of the wall of a femur turned quite round, so that its periosteal surface lies on the periosteal surface of the principal fragment; yet, on the outer surface of this piece (which was the inner surface, its wall), the thin plates forming the boundary of the medullary tube are still unchanged.*

But if any deem these, and the like characters, insufficient to prove the absence of ensheathing callus, and of callus extending into the medullary tube, yet recent specimens are not open to such doubts. I add, therefore, that (with the exceptions presently to be mentioned) in all the specimens of fracture that I have been able to examine, in the human subject, within six months of the time of the injury, there has been the same absence of provisional or ensheathing callus. The specimens here present are—a radius, four weeks after the fracture;† another, four or five weeks;‡ a tibia, five weeks;§ a femur, six weeks;‖ another of the same date;¶ a third, I should think, about eight or nine weeks;** a radius, of somewhat later date;†† a tibia, eight weeks;‡‡ a fibula, eleven weeks;§§ a tibia, twelve weeks;‖‖ and a tibia, sixteen weeks after the injury.¶¶ Here are, also, others of various but unknown dates, all in process of apparently natural repair. All these were cases of simple fractures, and they include (with a few exceptions presently to be mentioned) all the specimens of such recent fractures, in the human subject, as are in the museums of the college and of St. Bartholomew's Hospital. The displacements and other conditions following the injury have been manifestly various; but all agree in this,—that the fragments are united by intermediately placed reparative substance, and that this, whether soft or osseous, in no case surrounds or ensheaths the fragments, or does more than just close in the medullary canal. When present in the largest quantity, it is only enough to smooth off the chief irregularities, and to fill up the interspaces and the angles or corners, between the fragments.

Such, then, appears to be the natural mode in which the reparative material is deposited for the union of fractures of human bones. And regarding the particular position which it may in each case occupy, I do not know that it can be more exactly described, than by saying, that it is deposited where it is most wanted for the strengthening of the bone,—so that, whatever would be the weak part of the bone, if unhealed, there is the new material placed, in quantity as well as in position just adapted to the exigencies of the case, and restoring, as much as may be, the original condition and capacities of the bone.

If now it be inquired why this difference should exist in the corresponding processes in man and other animals, I believe still, that it must be ascribed principally to the two causes already quoted from the catalogue—namely, the quietude in which fractures in our bones are maintained, and the naturally greater tendency to the production of new bone which animals always manifest. Even independently of surgery, in the case of fractures of the lower extremity, the human mode of progression almost compels a patient to take rest; and in fractures of the upper extremity, the circumstances of human life and society permit him to do so far more than other animals can. The whole process of repair is, therefore, more quietly conducted; and, as we may say, there is comparatively little need of the strength which the formation of provisional callus would give a broken limb.

The exceptions to the rule of difference in the repair of human bones, and those of animals, confirm it as thus explained; for the only bones in which, in the human subject, a provisional callus is generally or naturally formed, for the repair of fractures, are the ribs. In cases of fractured ribs one may see, indeed, a very close imitation of that which is described, from experiments on animals, as the ordinary mode of union. The provisional callus is well formed under the periosteum, and encircles, like a broad ring or ferrule, both the fragments,

* Museum of the College of Surgeons, No. 454.
† Museum of St. Bartholomew's Hospital, series iii. 94. ‡ Ibid., 95.
§ Ibid. ‖ Ibid. ¶ Museum of the College, No. 412—415.
** Museum of St. Bartholomew's, ser. iii. 103. †† Ibid., 78.
‡‡ From Mr. Lonsdale's Museum.
§§ Museum of St. Bartholomew's, ser. iii. 80. ‖‖ Ibid., 67.
¶¶ Museum of the College, No. 438, and of St. Bartholomew's, ser. iii. 113.

and may almost completely ossify before their union is accomplished, or even apparently begun.

Another bone for the repair of which, but more rarely, callus is formed around the fragments, is the clavicle; and the best specimen in which I have here seen it is one* in which the fracture was not detected, and the fragments were allowed to move on one another, till the patient died, twelve weeks after the injury.

Except in such cases as these of fractures not kept at rest, I doubt whether a natural formation of callus beneath the periosteum, or within the medullary tube of a human bone, would ever occur. In disease, the occurrence is not so rare; for, when the natural process of union fails altogether, the loose ends of the bones may be inclosed within a case formed wholly or in part of bone; or an imitation of callus may be made by a gradual morbid accumulation of bone around a fracture, even after its natural union.† (St. B. H. C. 29.)

But I think the comparative restlessness of animals is not alone sufficient to account for all the difference in the processes. The remainder may be ascribed to their greater tendency, in all circumstances, to the formation of new bone. Not in fractures alone, but in necrosis this is shown. It is very rarely that such quantities of new bone are formed, even in children, as are commonly produced after necrosis of the shafts of bones in dogs or other animals; nor is there in the human subject, any such filling up of the cavities from which superficial sequestra have been separated, as the experiments of Mr. Hunter showed, after such exfoliations from the metatarsal bones of asses.‡

Other examples might be quoted; but these may suffice to show that, after injuries, new bone is formed more abundantly in animals than in man. And I hope enough has been said to prove that the generally received account of provisional callus, and other parts of the healing of fractures, is an exaggeration of what occurs in man. If it be asked, what it is that is felt like a callus after fractures, I would say that, in such cases as I could examine after death, I have usually found that the overlapping ends of the bone, being both at once grasped, had been taken for the enlargement of callus. Sometimes, also, the thickening and induration of the parts around the fracture infiltrated with serous and bloody fluid, or with lymph, have been mistaken for it.—*Lond. Med. Gaz.*, July 20, 1849.

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29. *On the Processes of Repair and Reproduction after Injuries.*—Mr. James Paget, Professor of Anatomy and Surgery to the Royal College of Surgeons of England, in a recent course of lectures on the Processes of Repair and Reproduction after Injuries, makes the following observations on some of the relations which the reparative process bears to those of inflammation; and on the identity of the power exercised in the repair of injuries, and in the development of the germ.

"It is not," he remarks, "because we have any well-defined idea of inflammation that it is desirable to refer to it, as if it were a standard with which we might compare other organic processes; but because some idea of inflammation, however vague, mingles itself with nearly everything that is considered in surgical pathology. Nowhere is this more manifest than in what has been written in surgical works upon the methods of repair; concerning which the general impression seems still to be, that a process of inflammation forms part of the organic acts by which even the smallest instance of repair is accomplished.

"Now to judge whether, in any process of repair, an inflammation of the wounded part ensues, we have two kinds of evidence: namely, that which is derived from the presence or absence of the usually admitted signs of inflammation during life, and that which may be found in the presence or absence of

* Museum of St. Bartholomew's, ser. iii. 92.

† Museum of St. Bartholomew's, iii. C. 29.—In the same museum (ser. iii. 65-66), is a humerus, with a quantity of bony callus accumulated round a fracture of its shaft. It was taken from a man who died some weeks after the fracture, and whose arm had, for a long time after the injury, been the seat of severe spasms. See Mr. Stanley's "*Illustrations of Diseases of Bones*," pl. xxiii. fig. 3.

‡ Museum of the College, Nos. 641 to 656.

inflammatory products, *i. e.*, exudation-cells, after death. Each of these has its advantages; but in experimental inquiries, the latter is by far the better evidence, and that which I have chiefly sought. Judging, however, as much as possible, from both these forms of evidence, the processes we have traced appear to warrant these general conclusions:—

"1. That in the healing of a wound by immediate union, inflammation forms no necessary part of the process; rather, that its presence always hinders, and may completely prevent it. The healing by immediate union should be a simple rejoining of the severed parts, without the production of any new material; and in the same proportion as, in any case, inflammatory matter is effused, either in or between the wounded parts, in that proportion does the healing deviate from the true and best process of immediate union.

"2. For subcutaneous wounds and injuries, as in divided tendons, simple fractures, and the like, nearly the same may be said. Inflammation is excited by the local injury, but its products form no necessary part of the material of repair; rather, the more abundant they are, the more acute the inflammation is, and the longer it continues, the less speedy and the less perfect is the process of repair. For here, the necessary or best reparative material is a substance which, both in its origin and its development, declares its non-inflammatory nature; a substance which is produced without the signs of co-existent inflammation, and of which the development is different from that of the true inflammatory products. And this, which is most evident in the case of the healing of subcutaneous injuries by bonds of connection, is probably equally true in the case of subcutaneous granulations.

"But, 3dly. In the healing of a wound by primary adhesion, or by open granulations, we have evidence of a process of inflammation, not only in the presence of its ordinary signs in a degree generally proportioned to the severity and extent of the injury, but in the character and mode of development of the new materials that are formed for the repair. For these materials are, in all appearance, identical with those of such effusions of lymph as all are agreed to consider the effects of inflammation.

"Still, 4thly, in these cases we have evidences that the inflammatory process is necessary for no more than the production of the organizable matter,—and, in the case of granulations, for the production of only the first portions of it. The right formation of the cells, and, yet more evidently, their higher organization into cellular tissue and cartilage, ensue only while the signs of inflammation are absent. They are manifestly hindered or prevented when signs of inflammation are distinctly present, or when its existence may be suspected in consequence of the presence of some irritation, as a foreign body, dead bone, or the like. The continuance of suppuration during the process of healing is no proof of the continuance of inflammation, if the account that I have given of pus be true.

"In these modes of healing, therefore, we may conclude that inflammation is only partially, and at one period requisite; and that, in regard to its requisite degree, the least amount with which an effusion of lymph is possible, is that which is most favourable to repair.

"Lastly, for the process of healing by scabbing, the absence of inflammation appears to be essential: indeed, the liability of our own tissues to the inflammatory process, and to the continued effusion that it produces, appears to be that which prevents their injuries from being healed as easily and surely, by the scabbing process, as nearly all open wounds are in animals.

"Such may be regarded as the relations of the reparative process to that of inflammation, as it is commonly understood; but, I repeat, such a comparison can be made only for the sake of deference to the general state of opinion in matters of surgical pathology. In truth, we know less of inflammation than of the reparative process.

"But, admitting the share which inflammation has in the repair of injuries to be such as I have expressed, it appears necessary to consider next how such a process can be made to minister to repair;—what is the power that determines its results to be such, or of such a kind, as are required for the restoration of the perfection of the injured part? The mere act of inflammation in a part

would not heal its wounds; it would only produce a material which might be developed into cellular tissue and cuticle, and in which blood-vessels might be formed. Some other power must inform the course of the inflammation, and determine its result towards the healing of the wound. And so with all the other special acts of which each process of repair consists; whether we assume the operation of an assimilative force, or detect germs of tissues, or productive cells, which we may regard as centres of power,—still we must admit, I think, that the reparative process is determined in every act according to the same law, and by the same powers, as those which actuated the development of the germ. For in the repairs of even the highest animals we may discern all those features which I enumerated as characteristic of the power of the germ, and as distinguishing it from any force of assimilation, or any other force assumed in the explanations of the maintenance of the body by nutrition.

"Thus, 1st, the material for the repair of an injury is constructed according to no present model, such as is assumed for the hypothesis of assimilative force: it is developed from no tissue germ left by the damaged part for the construction of its successor.

"In the repair of a divided tendon, the whole length of the connecting bond is developed equally; or, if there be a difference, it is that the mid-space is in advance of the rest. No assimilative force in the ends of the original tendon can be imagined thus equally diffused, nor could germs for the growth of tendon have been strewn along the space left by the retraction. So, in the repair of fractures, the new bone is commonly formed first in contact with the original shaft, as if it were an out-growth from it: and here the assimilative force may have effect: but it is also often formed in detached parts, even outside the periosteum, at such distance from the old bone, and with such intervening tissue, that no act of an assimilative force can be reasonably imagined sufficient for the result.

"What, then, can determine such a reconstruction of parts as this? Surely nothing but such a power as that which determined their original construction from the germ.

"The identity of the power is, in the second place, manifested by its mode of operation. Whatever be the structure to be reproduced, it is constructed through the same stages as were traversed in its first development. Witness the cases that I have referred to: in the two modes of development of fibro-cellular tissue for repair, both equally imitations of a natural development—in the two modes for the production of new bone, both alike repetitions of the natural development of bone—in the mode of development of vascular loops, and of the walls of the blood-vessels. So, that, various as are the conditions in which we watch the process of repair, and various as the degrees of its perfection, yet is there no real variety of plan—no deviation from conformity with the law, according to which the new structures are developed in the germ.

"Observe, 3dly, how, as in the germ, many independent developments concur to the attainment of the end. In the several layers of granulation cells, while one portion are forming themselves to cellular tissue, another are constructing cuticle, and others are permiting and concurring in the progress of new blood-vessels. Or, in a wound involving many different tissues, we may discern the material that unites each of them, gradually assuming more of the characters of that which it unites, or that its position needs.

"4thly. The limits by which the reparative process is bounded are the same as those to which the development of the germ was confined. Great as the activity of the process may be in some instances, yet does it never achieve more than the power of the germ did. Trembley's hydra multiplied by mutilation fifty-fold: but the force thus manifested could not have been made to develop that hydra into any higher specific form, nor even, by expenditure in growth, to have formed from it a hydra of fifty times the usual dimensions. And so, in the repair of higher organisms, we find perfect tendon, perfect bone, perfect nerve, and of these just so much as is needed to restore perfection; but, except in disease, the reparative process never, in either the quantity or the quality of that which it produces, goes beyond the point to which the germ-power had developed the same part.

"Lastly, the acts of the reparative process are in conformity with the conditions and the gradually-changing modes of action of the germ which we observe in advancing years. A part which is injured in the child, is repaired with tissue proper to the childish state; the same part injured in the old man, is repaired with some lower tissue, or with tissue like that which is natural to age.

"Whether, then, we regard the exact details of the method according to which the reparative process is accomplished, or the end that it achieves, or the limits within which both its methods and its ends are confined, we see alike the evidences that the power that actuates it is the same as that which actuated the development of the germ. In every impregnated germ, we must admit that properties are implanted, which, in favourable conditions, issue in the power to form, of the germ and the materials it appropriates, a being like those from which it sprang. And mysterious as it may seem, yet must we conclude that a measure of those properties is communicated to all the organic materials that come within the influence of the germ; so that they, being previously indifferent, form themselves in accordance with the same specific law as that to which the original materials of the germ are subject. So, through every period of life, the same properties transmitted and diffused through the whole organism, are manifested in the determination of its growth and maintenance, in its natural degeneration, and its repair of every part, in accordance with that type or law which has prevailed in every individual of the species.

"Thus the constancy of both the method and the end of the reparative process may confirm us in the belief of the essentiality, we may almost say the immutability, of specific characters. For it shows that with each of all the countless varieties of visible form and structure, which mark the specific characters of living beings, there correspond peculiar internal properties of its constituent matter; properties which are capable of transmission and communication to all that can be incorporated in the living body, and of accumulation in the form of germs; and which, in any way thus transmitted, can manifest themselves in the unchanging power of constructing and composing matter according to the one determined and specific type.

"Thus, by watching the life of any being, in all the varieties of external circumstance and accident, and by seeing that, whatever be the deviation from its perfection into which, by the force of these, it is for a time compelled, it yet reverts to the same specific form; or, if it fall short of it, assumes no lower one: by watching such a life, we discern an image of the constancy of the law of specific characters; we gain an assurance that matter was not, and is not now, cast without design into the world, to be shaped by the force of chance and circumstance, and to be raised or degraded by their various ebb and flow; that the living occupants of the world have been fashioned and adapted for it, not by it; and that each was from the first endowed with properties that might descend unchanged from one generation to another, and in their immutability might be a symbol of Him who at the first created them, and by whose unchanging will and power they have been ever since maintained and still subsist."—*Lond. Med. Gaz.*, July 27, 1849.

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30. *Difference between Subcutaneous Injuries and those open to the Air.* By James Paget, Esq.—Recent improvements in surgery have shown how right Mr. Hunter was, when, in the very beginning of his discussion concerning the healing of injuries, he points out, as a fundamental principle, the difference between those two forms of injuries of which one is subcutaneous, the other open to the air. He says: "The injuries done to sound parts I shall divide into two sorts, according to the effects of the accident. The *first* kind consists of those in which the injured parts do not communicate externally, as concussions of the whole body, or of particular parts, strains, bruises, and simple fractures, which form a large division. The *second* consists of those which have an external communication, comprehending wounds of all kinds, and compound fractures."* And then, he says, "The injuries of the first division, in which the parts do not communicate externally, seldom inflame; while those of the second commonly both inflame and suppurate."

* Works, vol. iii. p. 240.

In these sentences, Mr. Hunter has embodied the principle on which is founded the whole practice of subcutaneous surgery; a principle of which, indeed, it seems hardly possible to exaggerate the importance. For, of the two injuries inflicted in a wound, the mechanical disturbance of the parts, and the exposure to the air of those that were covered, the exposure, if continued, is the worse. Both are apt to excite inflammation; but the exposure excites it most certainly, and in the worse form; *i. e.* in the form which most delays the process of repair, and which is most apt to endanger life. Abundant instances of this are shown in the difference between a simple and a compound fracture, though the former may have been produced by the greater violence; or, between a single fracture, even with much violence, extending into a joint, and an open wound, never so gently made into one. Or, for parallel instances, one may cite the rarity of suppurations after even extensive ecchymoses, and their general occurrence when wounds are left open.

I have lately had frequent occasion to observe these differences, in a series of experiments made for the illustration of the healing of divided muscles and tendons. Some of these were divided through open wounds, and some by subcutaneous section; and the present specimens afford a fair example of the difference of results that often ensued. In the same rabbit, the tibialis anticus and extensor longus digitorum were divided on the right side with a section through the skin; on the left with a subcutaneous section, through a small opening. Twelve days afterwards the rabbit was killed. The wound on the left side is shown well repaired, and with comparatively little trace of inflammation; the gap on the right is closed in with a scab, and an imperfect scar, but under these is a large collection of matter, and no trace of a reparative process. The contrast is the stronger, because in all these cases there is, unavoidably, more mechanical violence inflicted in the gradual subcutaneous division than in the simple open wound. And, it must be added, that a speedy closure of the external wound made in an open section may bring the case into more favourable conditions, than those of a subcutaneous wound made with more violence. This, also, I saw in some of the experiments: a clumsy subcutaneous division of one of Achilles-tendon excited great inflammation about it; while the open section of the other tendon in the same rabbit was quickly and well repaired, because the external wound had been speedily united, and had sufficiently soon converted the open into a subcutaneous injury.

Still, what Mr. Hunter said is true: subcutaneous wounds seldom inflame; open wounds generally both inflame and suppurate. It will be a principal object of this lecture to show something like an anatomical reason for this difference, in the fact that the materials produced for the repair of open wounds are not the same, or, at least, do not develop themselves in the same manner, as those for the repair of closed or subcutaneous ones.—*Lectures on the Processes of Repair and Reproduction after Injuries.—Lond. Med. Gaz.*, June, 1849.

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31. *Modes of Healing of Open Wounds.* By JAMES PAGET, ESQ.—The healing of open wounds may be accomplished by five different modes—namely, 1. By immediate union; 2. By primary adhesion; 3. By granulations; 4. By secondary adhesions, or the union of granulations; 5. By healing under a scab. The repair of subcutaneous wounds may be effected by immediate union, but is generally accomplished by connection, or the formation of bonds of union between the divided and retracted parts. Very rarely it is effected by means of granulations without suppuration. Of these modes, which I hope to describe hereafter in detail, it is the peculiarity of the first, or process of immediate union, that it is accomplished by the mere re-union or rejoining of the divided parts, without the production or interposition of any new material. In all the others, new material is produced and organized. This process of immediate union corresponds with what Mr. Hunter called "union by the first intention." It is not the same as that which, in modern surgery, is called union by the first intention; for that is the same as Mr. Hunter named "union by adhesion," or "by the adhesive inflammation;" and is effected, as he described it, by the organization of lymph interposed between two closely approximated wounded surfaces. Mr. Hunter maintained that, union by the first inten-

tion is effected by means of the fibrine of the blood extravasated between the surfaces of the injured part, which fibrine, there coagulating, adheres to both the surfaces, becomes organized, and forms a vascular bond of union between them.* Doubtless, Mr. Hunter was, in this, in error; but, as the blood extravasated in wounds is not without influence on their repair, I will endeavour to state the several modes in which it may, when thus effused, be finally disposed of.

In my last course of lectures, I stated the evidences for believing that masses of effused, or stagnant and coagulated blood may be organized; *i. e.* may assume the characters of a tissue, and may coalesce with the adjacent parts and become vascular. Among these evidences, several cases were mentioned in which such organization of blood had been distinctly traced; they included cases of blood effused in serous sacs, especially in the arachnoid, clots in veins organizing into fibrous cords, or, after less organization, degenerating into phlebolithes, clots organizing into tumours in the heart and arteries, and the clots so organized above ligatures on arteries as to form part of the fibrous cord, by which the obliterated artery is replaced. These last cases afforded the most conclusive evidence, because they had been very carefully investigated in a series of experiments and microscopic observations, by Dr. Zwicky.† In the course of last year, I had the opportunity of examining a specimen which, more fully than any other I had seen, confirmed his account of the mode in which blood-clots become organized. It supplied, too, some facts which appear to me important to the present subject.

The specimen was obtained from an insane person, by my friend Mr. Holmes Coote. A thin layer of pale blood-coloured and ruddy membrane lined the whole internal surface of the cerebral dura mater, and adhered close to it. Its colour, the existence of patches of blood-clot imbedded in it, and all its other characters, satisfactorily proved that it had been a thin clot of blood—an example of such as are effused in apoplexy of the cerebral membranes, of such as Mr. Prescott Hewett has so fully described in his paper in the Medico-Chirurgical Transactions. Numerous small vessels could be seen passing from the dura mater into this clot-membrane, and with the microscope, while they were still full of blood, I made a sketch from which the diagram was copied. The arrangement of blood-vessels bears a close resemblance, but, perhaps, more in its irregularity than in any positive characters or plan, to that which exists in false membrane formed of organized lymph: but the vessels were, I think, generally larger.

Such were the blood-vessels of this organized clot. Its minute structure showed characters which are of peculiar interest, because of their resemblance to those observed in the material that is commonly formed in the repair of subcutaneous injuries. In the substance of what else appeared like a filamentous clot of fibrine, sprinkled over with minute molecules, the addition of acetic acid brought into view corpuscles like nuclei, or cytoblasts, very elongated, attenuated, and, in some instances, like short strips of flat fibre. Of course, such corpuscles are not to be found in any ordinary clot of fibrine; neither are they seen in any stage of the organization of such lymph as is commonly effused in inflammation; but they exactly resemble such as may be found in certain examples of rudimental cellular tissue, and (among these) in the material for the repair of subcutaneous injuries. In short, the minute structure of this clot now organized, was an example of what I shall have often to refer to under the name of "nucleated blastema."

With such evidence as this of the organization of a thin layer of blood-clot, and of the development of its fibrine being apparently identical with that of the material commonly formed for the repair of subcutaneous injuries, it was with much surprise that I found that extravasated blood can, commonly, have no share at all in the repair of injuries.

One of the best proofs of this is, that scarcely the smallest portion of blood is effused in the cases in which the largest quantity of reparative material is

* Works, vol. iii. p. 253.

† Ueber die Thrombus; Zurich, 1846.

produced in the shortest time, and in which the healing process was most perfectly accomplished. In twenty cases in which I have lately divided the Achilles tendon in rabbits, I have only once found, in the subsequent examinations, a clot of extravasated blood in the track of the wound. In this case, I believe, the posterior tibial artery was wounded; for in all others, and in similar divisions of muscles, unless a large arterial trunk, such as the anterior tibial, were cut, the only effusion of blood was in little blotches, not in separate clots, but effused or infiltrated in the cellular tissue near the wound. In some cases there was blood-stained infiltration of the inflammatory products, but in none were there such clots as could be organized into bonds of union. In short, parts thus divided scarcely bleed: what blood does flow escapes easily through the outer wound, as the surrounding tissues collapse into the space left by the retracting parts; or, what remains is infiltrated into the tissues, and forms no separate clot.

It is the same with fractures. In a large proportion of these, one finds no clots lying between the fragments where they are to be united, and only very small spottings of blood, like ecchymoses, in or beneath the periosteum. The abundant extravasations that commonly exist in the subcutaneous tissue are generally confined to it: they are not continued down to the periosteum or bone.

In all these cases, then, we have sufficient proof that extravasated blood is not necessary for union by the first intention, or for any other mode of repair, in the simple fact that where the repair is best, and the material for it most ample, no blood is so extravasated as to form a clot that could be organized.

But, though this may be the usual case, the question still remains—When blood is effused between wounded surfaces, and clots there, how are the clots disposed of? For often, though not generally, such clots are found in wounds, or between the ends of a broken bone, or a divided tendon when an artery by its side is cut; and in most operation-wounds, one sees blood left on them, or flowing on their surfaces, after they are done up. How, then, is this blood disposed of?

If effused in large quantity, so as to form a voluminous clot, and especially if so effused in a wound which is not perfectly excluded from the air, or if effused in even a subcutaneous injury in a person whose health is not good, it is most likely to excite inflammation; and the swelling of the wounded parts, or their commencing suppuration, will push it out of the wound. Thus we often see blood ejected.

But in more favourable circumstances it may be absorbed; and this may happen whether it have formed separate clots, or, more readily, when it is infiltrated in the tissues. What I have seen, however, in the experiments to which I have already referred, leads me to dissent from the account commonly given of the absorption of blood thus effused. The expressions generally used imply that the first thing towards the repair of such a wound is the absorption of the extravasated blood; and that then, in its place, the lymph or reparative material is effused. But this can hardly be the case; for the absorption of blood is a very slow process, and commonly requires as much time as would suffice for the complete healing of a wound, or even of a fracture. Not to mention the very slow absorption of the extravasations of blood in apoplexy, or in serous sacs, I have found the blood effused in the subcutaneous tissue, and the muscles scarcely changed at the end of five weeks after a simple fracture; that in a tied artery as little changed after seven weeks; and even in common leech-bites we may sometimes find the blood-corpuscles in little ecchymoses unchanged a month after their extravasation: yet in much less time than this it is commonly implied that all the blood extravasated in an injury is cleared quite away, that lymph may occupy its place. My impression is, that this opinion rests on imperfect observations. Blood is supposed to be effused in all subcutaneous injuries; and where it is not found, it is supposed to have been absorbed; the truth, rather, being that, where no blood appears, none ever was.

The true method of the absorption of blood seems to be, that it is enclosed within the effused reparative material, and absorbed by the vessels of that material as its organization proceeds. The best instance in support of this, that I have seen, was in the case of an Achilles tendon divided subcutaneously

six days before death. The reparative process had proceeded favourably, and as strong a band of union as is usual at that period was formed of the new reparative material effused between the retracted ends. On slitting open this band, I found within it a clot of blood, such as must have come from a large vessel; and this clot was completely enclosed within the new material, not closely adherent to it, nor changed, as if towards organization, but rather decolorized, mottled, and so altered as clots are in apoplexy before absorption.

I believe that this case only showed in a very marked manner what usually happens with blood thus effused and not ejected; for it is quite common, after the division of tendons, to find new reparative material, if not containing distinct clots, yet blotched with the blood that was infiltrated in the tissue in which the reparative material is deposited: and even when the repair of a fracture was nearly perfect, I have still found traces of blood-corpuscles enclosed in the reparative material, and degenerating, as if in preparation for absorption.

Ejection and absorption are, doubtless, the usual means by which blood effused in injuries is disposed of; yet I feel nearly sure it may in some instances become organized and form part of the reparative material. The cases of manifest organization of blood already referred to leave no doubt of the possibility of this happening: its occurrence can no longer be set aside as a thing quite improbable. The only question is, whether the organization of blood effused in injuries has been seen. Now I think no one familiar with Hunter's works will lightly esteem any statement of his as to a matter of observation. He may have been sometimes deceived in thinking that he saw blood becoming organized in subcutaneous injuries (for subcutaneous granulations are sometimes very like partially decolorized clots); yet I believe he was more often right: for sometimes one finds clots of blood about the fractured ends of bones which have every appearance of being in process of organization. They do not look mottled, or rusty, or brownish, as extravasated blood does when it is degenerating, preparatory to its absorption; but they are uniformly decolorized to a pinkish yellow hue. They have less appearance of filamentous structure than recent clots have, and they are not grumous or friable, like old and degenerating ones, but have a peculiar toughness, compactness, and elasticity, like firm gelatine. When clots are found in this condition, I believe it is a sign that they were organizing, for this is the condition into which, commonly, the clot in a tied artery passes in its way to be fully organized; and (which is very characteristic) you may find clots in the track of wounded parts thus changing, as if towards organization, while those about them, and out of the way of the reparative process, are degenerating.

On the whole, then, I believe we may thus conclude concerning the part that blood, when it is extravasated, takes in the repair of injuries:—

1. It is neither necessary nor advantageous to any mode of healing.
2. A large clot, at all exposed to the air, irritates and is ejected.
3. In more favourable conditions, the effused blood becomes enclosed in the accumulating reparative material; and while this is organizing, the blood is absorbed; and—

Lastly, it is probable that the blood may be organized and form part of the reparative material; but, even in this case, it probably retards the healing of the injury.—*Ibid.*

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32. *On the Alliances of Erysipelas.*—Dr. Gull read before the South London Medical Society (May 10th, 1849), a highly interesting and practically valuable paper on this subject.

Dr. Gull stated that in the year 1847, during the winter, his attention was first drawn to the complication of erysipelas with inflammation of the fauces. The disorder then prevailed to a great extent, and was very fatal; the same has shown itself during the present spring on two occasions, and particularly during the prevalence of easterly and north-easterly winds. The object of this communication is to point out the relation of several apparently different affections to erysipelas, and to discuss the general plan of treatment to be pursued.

To rest satisfied with the definition that erysipelas is an inflammatory affec-

tion of the skin, would be to remain in ignorance of its practical nature, for such has been the advance in our method of looking on things, that we have learned to regard the word inflammation as expressing a very variable state, oftentimes such as by no means warrants depletion nor so-called antiphlogistics. That erysipelas is of the nature of inflammation we cannot doubt; we can imitate its results by applying a blister to the skin; and when the integument is loose we get, during erysipelas, a large amount of œdematous effusion, and often the production of pus in the parts beneath, as in the eyelids. But erysipelas is a peculiar inflammation, and is not, I think, necessarily limited to the skin.

In Nov. 1847, Mr. Fisher, a dresser in the hospital, sent for me to his lodgings: I found him scarcely able to speak, and sitting up in bed, complaining of much difficulty of breathing and a sense of suffocation, especially on attempting to lie down in bed. On examining the fauces, I found the soft palate red and greatly œdematous, and so elongated as to hang down upon the posterior part of the tongue like a fleshy translucent flap, and necessitating a prone position of the head to prevent its obstructing the larynx. The tongue was covered with a white creamy fur; it was indented at the edges. The pulse was frequent, and the skin hot. The whole indisposition had been preceded by shivering and uneasiness: I ordered him a brisk purgative, and afterwards the roses and quinine. The œdema of the fauces soon subsided, but on the third day, the *mucous membrane of the nose became painful and swollen, particularly about the septum:* there was a great sense of stuffing; and, on the fourth day, the erysipelatous inflammation had passed over the exterior of the nose, and subsequently the whole head and face were involved. The case terminated well under the usual treatment of infusion of serpentaria and ammonia, with wine. On inquiry, I found that he had been dressing a case of Mr. Cooper's in Martha's ward, in which there had been precisely the same order of symptoms. There occurred in that ward, and in the hospital generally, about this time, many such cases.

Eliza Phipps, æt. 28, was admitted under Dr. Hughes, Jan. 13, 1848. A single woman, employed as a servant. A week before admission, after exposure to wet and cold, she was taken with shivering, sickness, and pain in the head and limbs. Two days afterwards her throat became sore, her feverishness continued, and an herpetic eruption broke out round the left angle of the mouth. On admission, her skin was hot and dry; the face flushed; the *mouth* and *tonsils* much tumefied and injected. Tenderness below the angle of the jaw; great difficulty of deglutition; pulse 90; tongue furred; bowels open: four leeches were applied to the throat, followed by a warm poultice, and the julepum acidi hydrochlorici administered.

Two days after admission, an abscess, which had formed about the tonsil, burst, and she seemed greatly relieved; but two days subsequently the throat became again more painful; the fauces were injected, and covered in part by dirty secretion. *A small red spot formed at the inner canthus of the left upper eye.* (ung. nit. faucib.; garg. acidi nitr.; quin. disulph. gr. iij, t. d.; pulv. opii, gr. ss, vesp.; empl. lytt.; vin. rub. ℥iij.) In the evening I saw her, and found that the redness and tumefaction of the inner canthus and lachrymal ducts of the morning had now extended over the eyelids, and were distinctly erysipelatous.

The following morning, the report is that she passed a restless night, was very delirious. Pulse 160; throat less swollen and painful. *Erysipelatous inflammation* has extended an inch around the left eye; the colour is bright, and the edge well defined. The right eye is beginning to be similarly affected, the disease beginning in the same manner, from the inner canthus. (Rep. med. am. vin. ad ℥x; warm water dressing to eyes.) Subsequently, the erysipelas extended down the left cheek. The right ear and meatus became involved, and from this a purulent discharge came. Typhoid symptoms increased; the pulse was rapid, and she died nine days from admission, about the sixteenth of her attack.

A young man was admitted under Dr. Addison, for dysentery and abscess of the liver: he was suddenly attacked with difficulty of swallowing and soreness of the throat; on the third day the eyes became closed from inflammatory œdema

of an erysipelatous character; the right eye was first affected, and from the point at which the disease began being at the inner canthus, about the lachrymal ducts, *it seemed to be continued from the fauces.* In a short time the forehead and nose became involved, but before the cheek was implicated, the right meatus auditorius was found inflamed, and the integuments of the ears erysipelatous; whilst a distinct layer of healthy skin, an inch in breadth, intervened between the erysipelas of the ear and that of the forehead and nose, showing two distinct extensions of the disease to the external integuments. Laryngitis supervened, and soon cut off the patient.

This case presented us with the disease, beginning in the fauces and extending to the face, through the lachrymal canal and the meatus auditorius; also downwards to the vocal cords and upper part of larynx, which, on a post-mortem examination, was found œdematous.

Three other cases of cynanche occurred in this ward within a few days subsequent to this, but none of them passed into erysipelas.

About the time of the occurrence of the first case here recorded, there happened in Stephen's ward, which is for surgical cases exclusively, several cases which seemed to point out clearly the alliances of erysipelas; first, the ordinary erysipelas of head and face occurred in several cases; and lying in adjacent beds, in the same division of the ward in which the erysipelas had occurred, were two men, neither of whom had taken any mercury or iodine; one of these became the subject of acute stomatitis, which was accompanied by red, spongy, and swollen gums, fullness and tenderness of the salivary glands, and a large secretion of saliva; presenting thus many of the appearances of severe salivation. The other had great swelling and fullness, with tenderness of the tongue. This form of glossitis I have seen on several occasions; it is sometimes so painful and distressing as to require scarification to reduce it; at least, I have seen this practiced, although the great vascularity of the organ, and the difficulty of stopping the hemorrhage, render the operation dangerous.

In one instance, I saw glossitis limited to the right side of the tongue; the fauces were inflamed, and there was considerable constitutional excitement.

From the occurrence of these cases of cynanche with common erysipelas,—from the fact that we can often trace the continuity of inflammation from the fauces to the face, through one or several of the passages by which the mucous membrane is continuous with the skin,—from the connection of these with occasional glossitis and stomatitis, and from the œdematous condition of the mucous membrane accompanying these affections, I cannot but think they are natural alliances to one common condition; and if erysipelas is used substantively to express the peculiar disease of the skin, these other affections of cynanche, stomatitis, and glossitis, and laryngitis, may fairly have the word employed adjectively, and be termed "*erysipelatous.*"

Amongst the complications of erysipelas, or rather the extension of erysipelas itself, none are more formidable than such as implicate the larynx—no diseases are more insidious, and none more certainly fatal. It is by no means infrequent to meet with these cases during the prevalence of erysipelas, and their alliance to this disease is often clearly demonstrated. In the winter of 1847, and during the early part of this spring, I saw several. Amongst the cases of glossitis, stomatitis, and erysipelas, we had others in which the fatal termination was due to an extension of the disease to the larynx, often so insidious as to escape direct observation, until serious symptoms of dyspnœa came on. Nor can we wonder at the inexperienced being deceived in these cases; because, beginning as they do with cynanche, and this being so often a very simple affection, the irritation of the larynx is referred to the fauces only, and no serious apprehension is excited until the dyspnœa rapidly increasing calls for immediate aid.

A case illustrative of the truth of these remarks, occurred in one of the surgical wards of the hospital, in a man under the care of the late Mr. Morgan. Erysipelas and the like disorders were then prevailing, and this man complained of soreness of the throat; but his case elicited no particular observation, until, early on the morning of the third day, the dresser for the week, Mr. Richardson, was called to him about half past seven o'clock, and found him labouring for breath. He immediately sent for assistance, and procured the instruments

for tracheotomy; and, although but a short time intervened, and the operation was performed, the patient survived but a few minutes.

On examining the parts after death, the mucous membrane about the arytenoid cartilages and vocal chords was œdematous; here and there one of the large follicles about the fauces had suppurated; on the right side the mucous membrane was greatly injected, and when cut into, the submucous tissue was found to be infiltrated with yellow sero-purulent fluid. A regular gradation of changes could be traced around, until quite at the most distant parts; the submucous tissue was merely œdematous. The right inferior vocal chord was greatly œdematous, but translucent; the left was not perceptibly affected. The epiglottis was red and swollen.

The viscera of the abdomen were in good condition as far as the structure could be observed.

Mr. Travers, in his work on constitutional irritation, gives examples of affections of the throat during erysipelas. A woman had compound fracture of the patella. Suppuration in the knee-joint followed. Soon after this, an erysipelatous blush appeared near one elbow, and pus was distinguished in the subcutaneous cellular tissue. She went on thus for a few days, when she complained of soreness of the throat. A general redness was observed on the soft palate, from which it extended to the pharynx. The difficulty of swallowing augmented to a great degree, and difficulty of breathing followed. In this state, the poor woman died rather suddenly. The throat was not examined after death.

A gentleman, whilst intoxicated, was thrown from his horse, and received a lacerated wound of both legs, and a simple but severe fracture of one tibia into the knee-joint. Erysipelas of both legs followed, and incisions were required to evacuate the matter from the subcutaneous tissue. The patient was very low and exhausted, and erysipelas was still spreading up the thigh, when he suddenly complained of extreme sore throat. Only a general redness could be seen. In twenty-four hours after this he died, the dysphagia being complete. On examination of the throat, a diffused redness was found to be spread over the pharynx and palate, and to enter into the laryngeal cavity; there was some, but not much œdematous effusion into submucous tissue of pharynx and larynx.

Dr. Stevenson, of Arbroath, in the year 1826, publishes cases illustrating the contagious nature of erysipelas, and its connection with severe sore throat. "The disease," he says, "commonly began with a red or purplish blush, more or less extensive, over the uvula and velum, accompanied with very little tumefaction, but with considerable pain in swallowing. In many cases, the disease ended here, but in a few cases it extended to the larynx, producing a state of respiration like idiopathic croup; in others, it extended to the pharynx and œsophagus."

Diffused suppuration through the cellular tissue of the throat is another dangerous and fatal ally of erysipelas; and I have seen it appear under two forms. It cut off two of the inmates of the lunatic house at Guy's in one day, in the winter of 1847, and the day previously one died of common erysipelas. The cellular tissue may be affected from the cynanche by direct extension, or from erysipelas of the head and face extending down the neck, and implicating the parts beneath. So far as I have seen, erysipelas is often fatal in this way. This affection of the throat is to be distinguished from the so-called malignant sore throat which occurs in scarlatina; they agree only in the seat of the disease, and their fatal tendency. There is yet another close alliance between erysipelas and puerperal peritonitis; this is in general admitted, and, during the prevalence of this fatal disease in our lying-in charity last year, I obtained and examined the uteri of three women who had died of peritonitis. In all, pus was detected in the veins of the uterus, but the part of the uterus at which it was found seemed to me a fact worthy of recording. In all three every part of the uterus was examined. First of all, particularly at the part to which the placenta had been attached, but in none did the veins corresponding to this part contain any pus, and the structure seemed entirely healthy, the openings in the sinuses being filled with healthy firm coagula; but in all three the *veins about the neck* had suppurated, and all the usual marks of inflammation, viz., redness, tume-

faction, &c., existed at this part. Although these three cases may have been but so many coincidences, yet it certainly is worthy of remark, that in all three the inflammation had its chief seat in the part *most liable to injury;* and in neither could it have had anything to do with the attachment or separation of the placenta.

The well-known tendency of puerperal peritonitis to spread from patient to patient, its prevalence during epidemics of erysipelas, and the frequent alternations of the two diseases where many persons are brought together, and I might also add, the tendency of both to attack persons similarly situated—thus, any injury to the surface, as in surgical operations during the prevalence of erysipelas, is most apt to form a locality for it; so, after labour, when the neck of the uterus has been stretched or bruised, as indeed it must always be during labour, an inflammation of its tissue may occur, which, like that I have described in the throat, may pass to deeper tissues, spread to the veins, and fatal complication is the result; or, if not fatal, local œdema, from coagulation of blood in the veins, and all the miseries of phlegmasia dolens.

It would be, perhaps, without practical value to discuss minutely the exact local pathology of erysipelas. That it generally terminates in vesication rather than in suppuration is due, I think, to the rapidity of the vascular changes, and the transitory nature of the disease. In many instances, it does pass into the suppurative condition, as when there is much loose cellular tissue under the skin, as about the eyelids, or, as we have seen about the lax tissue, at the upper part of the larynx.

That it is an inflammatory disorder, few will be disposed to deny; but I think as few will hence infer that we must treat it by depletion, antimony, &c. Inflammation is a condition which occurs in states of the system most widely different—as between simple pustular acne and violent typhoid small-pox; pustules result in both, and both are inflammations of the skin; but to say no more than this, would leave us far off from anything like appropriate treatment, which, indeed, can never be determined by classifying a disease, but by studying the state of the system in which it occurs.

I take it for proved, that erysipelas may be the result of contagion, as well as arise spontaneously from external and internal causes. It may occur in states of the body most dissimilar as regards vascular plethora; but, so far as I have seen, however various the general aspect, there is a want of tone in the nutrient system, and disorder of the secretive organs.

In a society constituted as this is, the question of treatment must be one of paramount interest. Men of great experience have maintained opposite plans of treatment in this disease; the depleting and antiphlogistic means being recommended by one side, tonics and support by the other. While I leave this discussion to the individual experience of the members, I may set down what is the plan of treatment pursued for the most part at Guy's. The contagious nature is admitted; and so soon, therefore, as a patient shows signs of erysipelas, he or she is removed from the general wards. A mild purgative is ordered, and if the patient be moderately young, and of fair powers, a neutral saline, and gentle nourishment; the local treatment being various, or none. The part is punctured, or flour or tepid gruel is applied.

Sometimes argent. nitr. or a solution of arg. nitr., in moderately strong nitric acid, is applied, and with variable benefit, sometimes so successfully as to limit the disease—oftener not. On one or two occasions, I have seen the parts painted with tinct. of iodine; but I do not think I have seen any good from its application. Nitrate of silver, or its solution in nitric acid, has seemed to me to act best when the erysipelas is about the trunk or the extremities.

In most cases, warm fomentations are not used. I think I have seen them do great harm when very warm, and very assiduously applied, especially in favouring the extension of the disease to surrounding parts, and to the skin beneath. It is many years since I saw a man bled, as part of the treatment of erysipelas. Very early in the disease, tonics, with ammonia, are administered, and in cases where there is doubt as to the degree to which these may be carried, we take an intermediate course, giving an effervescing mixture composed of carbonate of ammonia and lemon-juice, the ammonia being slightly in excess.

Wine in the middle and latter stages is freely administered, and sometimes from the beginning. The success of this plan is very great, even in the worst cases.

Whilst erysipelas is confined to the skin, all is easy; but when it implicates the throat, how are we to act? May we attempt to lessen the local action by leeches and poultices, whilst we at the same time give tonics and stimulants? Or, are we to change our plan entirely when these parts are implicated, and employ antimony and the like?

This is a question of immense importance, especially when we remember that the implication of these parts is the most frequent cause of death in this disease, although I believe it is often overlooked from its insidious approaches; the patient becoming dull and semi-comatose from pressure on the vessels of the neck, makes no complaint, and the cause of death is referred to the head, until the first incision through the integuments of the throat at the post-mortem elicits the exclamation—"What's all this?"

Hopeless as these cases too often are, I yet think it might be admissible to attempt to lessen the local action by the smallest amount of local depletion, employing at the same time the same remedies as from the nature of the case we should employ if the erysipelas were on the surface. I have, however, already extended this paper too far, and the subject of treatment will advantageously admit of discussion; so that, thanking you for your patience, I may await your opinions on this important subject.

In the discussion which followed the reading of this paper, Dr. Lever stated some interesting facts.

A medical friend, he said, now deceased, was engaged in the examination of the body of a woman who had died from puerperal fever, when he was called away to a case of labour. Before this was completed, his services were required at another; both mothers died of puerperal fever; one child died of erysipelas commencing at the navel. Both nurses died of erysipelas, as well as other members of their families; so that altogether, eleven or twelve deaths occurred from his friend's unfortunate attendance. Two pupils, who usually studied together, were sitting one on either side of the bed of a patient suffering from a very severe attack of erysipelas, taking notes. Both were summoned within a quarter of an hour, each to a case of labour. On the afternoon of the same day, each attended a second case; all four women died of puerperal fever; all the children of erysipelas; still, on strict inquiry, neither disease was found to prevail in the districts where these patients resided, nor was it raging among other patients of the charity. A third instance was this: A nurse, who had been in attendance on a man who had died from erysipelatous sore throat, called in the afternoon one day to tell a lady whom she was engaged to attend in her approaching confinement, that she must decline such attendance, by the advice of her medical man. She sat in the house an hour or two, and partook of some tea. The lady was confined in the night, and died of puerperal fever. The nurse was attacked with erysipelas, and also died; and yet, with such numerous and accumulated facts, he was surprised to find many practitioners maintaining opinions quite opposite to these.

Dr. Lever would further remark that, in his opinion, a disease which he could not distinguish from puerperal fever might be produced by the medical attendant going in the same clothes from the dissecting-room, or a post-mortem, whatever might have been the fatal disease of the subject. He gave a remarkable case of the former—a case of sporadic puerperal fever, where the surgeon who had been at a post-mortem examination attended a lady in her confinement, and saw her no more; this case also terminated fatally. In conclusion, he would state that, in addition to topical measures, he thought he had seen advantage from the exhibition of opium and quinine from the commencement of the attack—one grain of the former and two of the latter every three or four hours. He approved of the tonic plan of treatment. He mentioned another instance of a medical man who had persevered in his attendance on midwifery cases until he lost twelve women.

Holding the strong opinions on the subject as he did, he could not regard such persons as *unfortunate, but highly criminal; for, instead of being messengers*

of mercy, and assuagers of anguish, they resembled the destroying angel; for, in every house they entered, they were marked by death and desolation.

Dr. P. Murphy said he had not the slightest doubt that erysipelas and puerperal fever were convertible diseases; he thought the medical man highly culpable who did not give up practice for some time when he had the misfortune to have a case of puerperal fever.

Mr. Ray said he had seen many cases of puerperal fever, and believed it was invariably conveyed by the nurse or medical attendant; he mentioned several cases in proof, and fully believed that it could be produced by other causes than that termed puerperal, as he himself thinks that in one case his patient suffered merely from his going direct to her from a post-mortem inspection.—*London Medical Gazette*, June, 1849.

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33. *Medical and General Treatment of Local Disease in Preference to Operation.*—Thomas Hunt, Esq., has written some interesting papers on this subject in the *Prov. Med. and Surg. Journ.* (May 2, 1849). In one of them he gives the following as his conclusions:—

"The extirpation of morbid growths may be said to be *indicated* (their position being convenient for operation): 1. Wherever the disease is clearly the result of local or mechanical irritation from some external source. 2. Whenever the tumour is neither painful, tender, nor progressive, the health being good. 3. Whenever it can be fairly demonstrated that the pain of irritation of the tumour being the primary and sole cause of disturbed health, its removal will be the less of two evils. 4. A tumour in the mamma, orginally depending on disordered health, may, *after the health is restored*, become painful from the pressure of the dress, and thus the absorbent glands may be excited, and the uterine functions disturbed. Excision may be justifiable in such a case; but the proper time must be chosen, and great attention should be paid to the health subsequently.

"The extirpation of morbid growths may be said to be *contra-indicated:* 1. When failing health precedes or accompanies the appearance of local disease. 2. When the disease is advancing, the tumour sensibly growing, no local or mechanical cause of irritation being apparent. In this case, it is right to assume the existence of latent constitutional disease, and to treat the case medically, rather than surgically. 3. When there is a plurality of tumours. 4. When the disease reappears, whether soon or late after an operation for its removal.

"The reader will observe that these rules contain little reference to the condition of the absorbent glands connected with the tumour, although surgical writers of the highest eminence have generally pointed out this circumstance as the one grand distinction which indicates or interdicts excision. Swollen axillary glands have always been held to be a strong objection to the removal of a tumour in the breast; and, on the other hand, a healthy condition of these glands has been admitted as a proof that the system is not contaminated, and that, therefore, the disease may be extirpated by the knife. Against this doctrine (which appears to have been adopted, by surgeon after surgeon, from preceding writers, without much reflection), I must enter my most earnest protest. Nothing can be more fallacious in theory, or unhappy in its practical results. Nothing is more common than the enlargement of the axillary glands from inflammation of the fingers, as in whitlow, or the introduction of any irritating matter or animal poison into the fingers. Yet, who infers from this circumstance, that these glands are the seat of incurable disease? They become irritated and swollen: but the irritation and swelling subside spontaneously as soon as the exciting cause is removed. On the other hand, malignant disease may pervade the whole system, and become developed in the mamma or any other organ, and exist in the form of a tumour for months together, the health evidently giving way, while the absorbent glands remain unaffected. The conclusion is, that it is not always advantageous or safe to amputate when the absorbent glands are sound; nor, when they are swollen and tender, and inflamed, do they present any absolute proof that the whole system is contaminated. In those cases *where the question of excision can be entertained at all*, it is impossible to tell whether this secondary affection of the absorbent system be merely the

effect of irritation, or an actual extension or translation of malignant disease. How, then, can any thinking man regard it as an important indication for or against an operation.

"Happily, hospital surgeons are becoming at length practically alive to the fallacy of this distinction; and it is one of the most pleasing features of the improved condition of modern surgery, that the treatment of morbid growths by extirpation, is now the *exception*, and not, as formerly, the *rule*."

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34. *Aneurism of the Axillary Artery, Ligature of the Subclavian.*—F. Le Gros Clark, Esq., relates, in the *London Medical Gazette*, July 13, 1849, a case of axillary aneurism in a man 47 years of age, admitted into St. Thomas' Hospital in Feb. 1849. The tumour, when the patient was admitted into the hospital, was about the size of a small orange, and was situated beneath the great pectoral muscle, and close to the left clavicle. It possessed all the characteristic signs of a true aneurismal dilatation of the axillary artery in the first division of its course. It pulsated forcibly, but the throb could be entirely controlled, at the same time that the swelling was sensibly diminished in size, by pressure on the subclavian artery above the clavicle. The thrill was both audible, and perceptible to the touch. When recumbent, the aneurismal sac could also be felt in the axilla. The clavicle was raised in correspondence with the size of the tumour. Pulse 60 (he had been placed under the influence of digitalis before coming to town); heart's action quiet and healthy; no evidence of any other organic disease; and all the important functions of the body were performed naturally and regularly. He was put on a low diet for a few days, preparatory to my placing a ligature on the subclavian artery.

Operation, Feb. 10th.—The patient reclined on a table, being well supported by pillows, but so as to allow the left shoulder (that of the affected side) to fall. A vertical incision was first made, to the extent of an inch and a half, along the posterior border of the sterno-mastoid muscle. The integuments over the clavicle being then drawn down, a second incision was carried freely outwards, from the lower extremity of the first, as far as the anterior border of the trapezius. By this the clavicle was freely bared, and a small artery and vein which bled freely required ligatures. When the skin had been allowed to resume its natural position, I divided the dense fascia immediately above and behind the clavicle, and conducted the remainder of the operation with the handle of the scalpel, which had been sharpened for the purpose. At this stage of the manipulation, although no undue force was employed, and the cutting instrument had been thrown aside, a vein of considerable size (probably the suprascapular, near to its termination) gave way, and poured out blood in profusion. A ligature was the only resource, and was therefore applied, at my request, by my colleague Mr. Solly, to whose prompt and able assistance I was much indebted throughout the operation. The border of the scalenus muscle was then sought for and found (nearly parallel, perhaps a little external to that of the sterno-mastoid); and the artery was at once felt pulsating upon the first rib. An attempt was first made to pass the aneurism needle from below upwards between the vein and artery; but as this was not readily effected, the direction was changed, and the needle was introduced between the lowest brachial nerve and the artery, and brought out between the latter and the vein. A strong and stout ligature of silk (of the size of small whip-cord) was carried round the artery with the needle, and readily tightened. Pulsation in the sac and artery immediately ceased, and the former became flaccid. The patient complained of loss of power and numbness of the limb, but expressed himself as relieved of the pain he had before suffered, and which arose, no doubt, from pressure on the axillary nerves.

Vespere.—Perfectly comfortable; perspires freely; pulse 72, without anything of excitement in it; no headache, nor pain in the arm; the limb which is enveloped in flannel, is quite warm.

He passed a quiet night, sleeping at intervals; on the following morning, the pulse had risen, but he continued to perspire abundantly; later in the day there was more febrile excitement, the pulse reaching 96, and being rather jerking; his diet was of course limited to slops; and towards evening the excitement

had subsided spontaneously, the perspiration continuing very profuse; breathing neither laboured nor painful.

On the 12th (second day after operation), the pulse was 90, and there was an angry blush about the wound, which was tender: some purulent discharge, A dose of castor oil was given, which acted freely; and a bread poultice was applied over the wound and inflamed surface, and one of the sutures (of which two had been applied to keep the triangular flap in place) was removed.

On the 3d and 4th days, he improved, and the angry appearance of the wound subsided; the discharge was tinged with blood. On the fifth day, he had some appetite, and was allowed beef-tea. I then fancied (for I was not sure, though others said they were) that I felt a feeble pulsation in the brachial artery. Sac pulseless, firm, and diminished in size; arm warm, occasionally painful; sensation not perfect; motion, even of fingers, very limited. The discharge more simply puriform; water dressing kept applied to the wound; but the skin-flap retained its position accurately, having united along the greater part of its lower border and at its angle. On the seventh day he was allowed a mutton chop. On the ninth and tenth days, the ligatures from the two veins and the small artery came away without any bleeding. Arm free from pain, and less "numbed."

On the sixteenth day, the wound was healing, but the ligature on the artery was still firm. A small roll of plaster was placed beneath it, close to the wound, and it was then put gently on the stretch and strapped down: in this way, slight traction, in a vertical direction, was kept up. On the following morning, viz., the seventeenth day, the ligature was loose in the dressings.

From this time the progress of the case continued uninterrupted. The wound gradually healed: the patient was liberated from restraint, as prudence dictated. The tumour diminished in size and became more solid, and it ceased to cause him any inconvenience. When he quitted the hospital, April 18th, his general health and strength were good. The arm of the affected side was well nourished, but had not regained its natural strength. A very feeble pulse was perceptible at the wrist. I have since heard that he remains well.

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35. *Aneurism of the Axillary Artery.*—Mr. Henry Hancock relates (*Lancet*, July 7, 1849) a case of large aneurism of the right axillary artery, in a man 34 years of age. The tumour was large, pulsating, and occupied the whole of the axilla, and extended under the pectoral muscles, which were pushed forwards, the clavicle being considerably raised. The tumour also extended down the upper two-thirds of the arm; he could not bring his elbow to his side; his hand was swollen and numbed, and there was great loss of power and intolerance of motion in the entire limb. The tumour, which diminished on pressure, again augmented when the pressure was removed; it also diminished when the subclavian artery was compressed; there was evident bruit de soufflet, and the aneurismal thrill could easily be detected by the touch, whilst the pulsation of the tumour was evident to the eye.

On the 26th August, 1848, Mr. Hancock placed a ligature on the subclavian artery, at the first rib, immediately external to the scalenus anticus muscle. Immediately on the ligature being tied, the pulsation in the tumour ceased. The patient did well until the 10th September, when the patient complained of pain in the tumour, which showed signs of inflammation. On the 16th September, the tumour had become very red, and a serous fluid oozed from its surface. On the 17th, the ligature came away. On the 23d, the tumour, which had suppurated, burst. The patient, after this, did well until the 4th October, when, while taking his gruel, he suddenly exclaimed that his arm had burst, and immediately dropped down, the blood flowing from the sac. In spite of the usual efforts to arrest the hemorrhage, he expired in about three quarters of an hour, on the eighteenth day after the ligature had come away, and the fortieth from the operation.

Post-mortem examination.—A large cavity occupied the whole of the axilla, extending under the pectoral muscles to the sternum in one direction, and down the arm nearly to the elbow in the other; the sac derived but little from the artery, the coats of which entered but slightly into its formation. The sub-

clavian axillary and brachial arteries having been exposed from the arteria innominata, to the bend of the elbow, the axillary artery was carefully examined; it was healthy throughout, except where it communicated with the aneurismal cavity by an opening of about an inch in length, opposite which it was slightly dilated, as may be seen in the drawing. The artery on the distal side of the opening was diminished in size. The ligature had been placed on the subclavian, nearly midway between the thyroid axis, and the first of the thoracic branches, which, like those of the thyroid axis, appears to be enlarged. The ends of the artery divided by the ligature were closed by adhesive inflammation, strengthened by a coagulum in each of half an inch in length, but which did not extend as far as the collateral branch given off above or below it, in this respect differing from the extent to which it has been commonly supposed to proceed. The artery was of its natural size, and gave off six branches between the part on which the ligature was applied, and the opening in the side of the artery into the sac. Three of these were large, one being equal in size to the thyroid axis, and it is my belief that the fatal hemorrhage took place from one or more of these vessels bringing their blood backwards into the artery above the opening into the sac. This was suppurating, and contained only a small coagulum opposite the opening in the artery, about the size of a small walnut, which adhered to its edges, and had in all probability closed up the communication between the vessel and the sac, thus preventing the entrance of blood into the latter. When the adhesions of this clot gave way at its lower and anterior portion, for about half an inch, the sudden and fatal hemorrhage took place. It must be admitted that, although the operation was successful in so far as the application and separation of the ligature, the division of the artery and the adhesion of its extremities were concerned, it was of very little use in this case. It afforded the patient a chance of life; but it singularly failed in the usually supposed result of obliteration of the trunk of the vessel, even to the next collateral branches. The communication between the branches of the thyroid axis and those on the distal side of the ligature soon becoming free and direct, the circulation to the opening in the vessel was in fact restored, so that, from the moment the suppuration caused the skin to give way, the patient's existence depended upon the small coagulum filling up the opening, thus showing the importance of the sac, and the necessity of its remaining entire, in order to ensure success in the operation for aneurism, even when the ligature is applied so closely to the disease as it is usually done in cases of operation on the subclavian artery.

If I had had the good fortune to be present when the bleeding began, I should at once have laid open the sac of the aneurism, now become an abscess, and placed my finger, if possible, on the bleeding vessel, until a ligature could be affixed around it; I should, in fact, have treated the case as one of wounded artery, and which would in all probability have required another ligature at its opposite end.

This case proves in a very remarkable manner the importance of the sac in all cases of aneurism, and the utter inapplicability of the Hunterian theory of the operation for aneurism to a wounded artery, in which no sac exists, an inapplicability which Mr. Guthrie was the first to bring under the notice of the profession, and which he has so strenuously urged in his lectures, lately published, on Wounds and Injuries of Arteries.

The statistics of the various operations recorded in the European journals bear testimony to the unfavourable results of the present mode of proceeding. I have collected the particulars of forty-two cases, and they demonstrate that, in the aggregate, the recoveries number two to one failure; that, in those cases traced to injury where the ligature was placed in the situation usually selected on the subclavian, external to the scalenus anticus muscle, the failures are nearly equal to the recoveries; of those in which the axillary artery itself was tied, the whole recovered, as may be seen in the following summary:—

Of the forty-two cases, twenty-seven recovered, fourteen failed, and the result of one is not stated. Of the twenty-seven recoveries, fourteen were the result of accident, and thirteen spontaneous, or idiopathic. Of the fourteen failures, eight were traced to injury, and six were spontaneous, and of the

whole number more than half were those in which the subclavian was tied, the aneurism originating in violence, so that the following are the results:

Four cases the result of accident, the axillary artery tied, and the whole recovered. In three of these, the sac suppurated, and in one of the latter secondary hemorrhage took place on the nineteenth day, but it was easily suppressed by styptics.

Eighteen cases the result of accident; the subclavian artery tied. Ten succeeded, eight failed. In two of the successful cases the sac suppurated, one in a few days, the other not until three years after the operation. Of the eight failures, the sac suppurated in four, in one bursting into the pleural cavity.

Nineteen cases of spontaneous axillary aneurism, the subclavian artery tied; thirteen succeeded, six failed. Of the successful cases, the sac suppurated in three. Of the unsuccessful cases, the sac suppurated in one.

The above, whilst giving the results of the two modes of operation, also shows the relative number of cases in which the sac suppurated in the traumatic and idiopathic form of axillary aneurism, whilst in twenty-two cases resulting from injury, we have nine; of nineteen cases originating in disease, we have only four followed by suppuration of the sac.

After the data here given, ought we so indiscriminately to tie the subclavian artery in cases of axillary aneurism as has hitherto been done? Should we not rather tie the axillary artery itself in all cases where the mischief can be traced to a direct injury, and where the size of the tumour admits of our reaching this vessel? Hitherto, whether the aneurism has been caused by a stab, a gunshot wound, rupture by violent stretching, a blow or crush, or by disease, with very few exceptions the treatment has been the same. According to this method, the ligature is applied at such a distance from the sac, that the blood is carried freely into the main trunk between the ligature and the point of rupture; and consequently, in those instances, as in the case above related, where the vessel retains its natural size, and the sac suppurates, the patient must be exposed to secondary hemorrhage, and its lamentable consequences; whereas, if the axillary artery is tied close to the sac, and below the large collateral branches, the free current of blood into the sac is prevented, so that, should suppuration of the latter take place, it would diminish but slightly the chances of recovery as far as hemorrhage is concerned. We have seen the large proportion of recoveries where this practice has been adopted, and been followed by suppuration; in three out of four cases, suppuration took place, but all recovered; and in one, although secondary hemorrhage ensued, it was so slight as to be easily restrained by styptics. How different is this from what obtained in the case I have detailed; there the sac suppurated, and hemorrhage occurred, but so violent that the patient, although receiving immediate assistance, was to all intents dead from the moment it gushed forth.

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36. *Case of Popliteal Aneurism.* By J. D. Wright, Surgeon-Major Grenadier Guards. (*Proceedings of Royal Med. Chirurg. Soc.*, June 12th, 1849.)—This case derives its interest from the fact of a favourable termination having followed the application of a ligature on the femoral artery after the aneurismal sac was ruptured, compression having previously failed in effecting its obliteration. The patient was aged 37. Six days prior to his admission into the hospital, he had become aware of a popliteal swelling, to which his attention was directed by pain in the knee. The tumour, on examination, was found to be as large as an orange, and presented all the characteristics of true aneurism. He was bled, and the pad of an Italian tourniquet applied over the femoral artery, just before it enters Hunter's canal. Effectual pressure could not be borne continuously; but the limb gradually became accustomed to partial interruption of the flow of blood through the artery, and the tumour became smaller and more solid. On the eighth day, however, the sac burst whilst the patient was at rest, and it was deemed advisable to tie the femoral artery, which was done after the lapse of only three hours. The ligature separated on the twenty-sixth day, and the wound healed kindly. A twelvemonth has since elapsed: the man is well, and the tumour is reduced two-thirds of its volume. *London Med. Gaz.*, July 6, 1849.

37. *Popliteal Aneurism successfully treated by Pressure.*—Mr. Charles Hawkins mentioned a case of popliteal aneurism successfully treated by pressure. The patient was ninety years of age, and under the care of Sir B. Brodie. He had been the subject of various maladies, and seven or eight months before death a pulsating tumour presented itself in the ham. There was no trace of any other disease in the vascular system. A piece of amadon plaster was placed over the swelling, and kept in position with a bandage. All pulsation ceased in four or five months. He died of other diseases. All the usual appearances of a cured aneurism were found after death.—*Ibid.*

38. *Galvanic Acupuncture — Aneurism of the Subclavian Artery obliterated by it.* — M. Abeille, assistant surgeon to the Hospital of Val de Grâce, at Paris, lately brought before the Academy of Medicine a case of aneurism of the subclavian artery, which he succeeded in obliterating by galvanic acupuncture. The subject is a maiden lady of sixty-five, and the aneurism was as large as a hen's egg. The patient having been put under the anæsthetic effects of ether, four steel needles, two inches long, and one line in diameter, were thrust into the sac in pairs, to the depth of about three-quarters of an inch, and these were put in communication with a galvanic trough, containing twenty couples. The poles were then alternately put in contact with each pair of needles, and this contact never lasted more than twenty minutes. The tumour soon diminished in size, became firmer and more resisting; its pulsations gradually disappeared, and the beating of the radial artery stopped. The galvanic apparatus acted upon the needles for thirty-seven minutes. When the tumour became quite hard, and presented no more pulsations, the needles were withdrawn. A few drops of blood escaped by the apertures left, and the skin was a little scarified around the latter; a cold compress was applied on the tumour, complete rest enforced, and strong pressure applied on the course of the artery. This pressure was kept up for about ten hours. On the next day, a slight vibration could be perceived in the tumour, but the radial pulse had quite disappeared; the whole arm and forearm were very cold, and the seat of a very uncomfortable formication. Motility of the fingers was abolished. From the third to the fourth day the pulse at the wrist reappeared, the little eschars fell off, and on the fifth day the tumour began to decrease. Thirty-seven days after the operation, there was no prominence of the skin to be any longer distinguished. The artery, three months afterwards, seemed to have slightly increased in size. The patient was seen repeatedly for two years, and the cure was completely maintained. M. Abeille, after the report of this successful case, gave the Academy some details respecting a certain number of experiments on galvanic acupuncture performed upon dogs. The trough was made to act for five minutes on the femoral artery of a dog, the needles having been thrust through the soft parts. The animal was killed two days afterwards, and a plug, one inch in length, was found; it extended to the next collateral branch, was very consistent, and already adhered pretty firmly to the parietes of the vessel. The concentric layers could be distinguished very plainly by a transverse section. In the second experiment, the artery was laid bare, and acted on as above. The dog was left to himself in a room for twenty-four hours, then operated in the same manner on the other limb, and killed the next day. Both arteries were examined carefully, and divided transversely two inches above and below the plug. On introducing a stilette by the superior or inferior aperture, its progress was steadily resisted by a hard body closely adhering to the parietes of the vessel. The plug, on being laid bare, presented the same aspect as the one mentioned above, and the same results were obtained in the eight experiments which followed the two which have just been described. The author has never noticed any inflammation in the various arteries upon which he had experimented, except the pseudo-membrane which connects the plug with the vessel be looked upon as the result of phlegmasia. This membrane, which really is the consequence of an inflammatory process in the internal coat of the vessel, will be produced whenever the obliteration of an artery takes place, howsoever this state may have been brought about. It is therefore not the direct consequence of the galvanic agency. As to the value of the opera-

tion, the author adduces the following remarks: The pain produced by galvanic acupuncture is far beyond any other, and this fact alone would be sufficient to give the ligature the preference whenever the latter can be used with advantage, as, for instance, in aneurism seated on the limbs. The dangers of acupuncture, and the accidents to which it may give rise, are equal to, if not above, those which may follow the ligature of vessel. Acupuncture may cause hemorrhage when it is not successful, or cauterization of the skin and the parietes of the sac, if very great precautions be not taken; inflammation or suppuration of the latter, and very serious consecutive hemorrhage, &c. If the galvanic operation were less painful than the ligature, it might be tried first, and tying of the vessel had recourse to in case of failure. But it frees the patient neither from pain nor danger, and will never stand as high as the ligature in aneurisms situated on the limbs. In short, acupuncture may be of great assistance in certain exceptional cases, in spite of the atrocious pain it produces. This is the only advantage which may be conceded to it. This advantage would, however, become immense, if it became very evident, by a series of facts and pathological specimens, that coagulation is the constant effect when galvanic acupuncture is performed upon human blood. The Academy has appointed Messrs. Roux, Poisseuille, and Gimelle, to report upon this paper. It is gratifying to find the author of a paper on a peculiar operation, and who can boast of a successful case, to be so very sober in his laudations, and so conscientious in the pointing out the various disadvantages of the process. M. Petrequin, of Lyons, who originated the use of galvanism for the cure of aneurisms, was rather more sanguine. M. Velpeau has tried it at La Charité, and met with several failures.—*Lancet*, Sept. 1, 1849.

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39. *Dislocation of the Humerus, with Fracture.*—Mr. Syme has lately met with a case of dislocation of the head of the humerus into the axilla, complicated with fracture about the middle of the humerus. This double accident was exceedingly rare. The patient had fallen through a trap door into a cellar, and his arm had become entangled among the spokes of a ladder during the fall. It was determined that the dislocation should be reduced, before an attempt was made to set the fractured bones. For this purpose, the forearm was bent upon the humerus, and a bandage was then rolled round the whole arm as high as the shoulder. Over this, a couple of Gooch's splints were placed; the lac was then attached above the seat of fracture, and secured by another bandage. Extension was made in the direction of the long axis of the trunk, a large pad being first stuffed into the axilla. Reduction was readily effected, and the subsequent progress of the case had been satisfactory.—*Proceedings of Edinburgh Med. Chirurg. Society* in *Monthly Journ.*, July, 1849.

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40. *Counter-Openings.*—M. Diday states that surgeons have either given no directions, or only such as are erroneous, for the mode of making counter-openings. The intention of these being to prevent the burrowing of pus, certain conditions are to be observed:—

1. The internal orifice of the canal about to be created is to be situated at the very extremity to which the detachment of the tissues has extended. 2. The new canal must traverse the tissues in the most favourable direction for the free issue of pus. Inguinal suppuration has a great tendency to produce separation, the burrowing inwards at the genito-crural bend being greatly favoured by position, and the lamellar character of the cellular tissue. If a counter-opening is made *perpendicularly* to the surface of the skin, large as this may be, the detachment of parts still goes on, as the pus, to enter it, would have to penetrate against the action of gravity. The artificial canal must, therefore, be itself *vertical;* to accomplish which end the tissues must not unfrequently be passed through obliquely rather than directly, the *route* being, in fact, a longer but more accessible one. 3. The opening must be large enough, though this is a matter of less consequence if its situation and direction have been well chosen. 4. The new track should be of as equal a diameter as possible throughout. 5. It must be so made as to allow of the introduction, not only within the lips of the

incision, but into the whole extent of the canal, of a tent of lint or charpie, without which its permeability cannot be maintained.

Supposing the above indications to be correctly laid down, they serve to show the erroneousness of the present practice, viz., the projecting the point at which an incision is to be made on a grooved conductor, and cutting down upon it from without inwards. This is sometimes difficult, and causes unnecessarily large incisions, and undue manipulation of the part. It is, in the author's opinion, a capital error to incise from without inwards; and, after having ascertained, by means of a probe, the direction of the sinus and that of the desired opening, he passes in a small trocar with its canula, not exceeding a probe in size, and, having reached the extremity of the sinus, thrusts the trocar forward with some degree of force, so as to make its point appear through the skin at the desired place, after which he removes it, leaving the canula *in situ*. The incision, however, usually requires further dilatation, and to this end he places the point of a straight bistoury in the end of the canula, which projects externally, and by pushing in the one while he withdraws the other, the entire track of the wound is equally enlarged. The canula is again introduced for the purpose of affixing the tent to it.—*Brit. and For. Med.-Chirurg. Rev.*, July 1849, from *Gazette Méd. de Paris*, 1849, No. 1.

41. *Successful Treatment of Morbus Coxæ, in its first stage, by Mercury.*—Dr. Bellingham communicated to the Surgical Society of Ireland (April 28, 1849,) three cases of morbus coxæ, in the first stage, successfully treated by mercury, with some very interesting remarks upon the advantage of this method of treatment, and upon the infrequency of laxation of the head of the femur, in the third stage of this disease.

It is scarcely necessary (Dr. B. remarks) to say that the treatment in the cases he narrated, and which proved so satisfactory, was introduced by Dr. O'Beirne, of this city. It is scarcely necessary either to observe that, until the year 1834, when Dr. O'Beirne called the attention of the profession to the great value of mercury in ulceration of the cartilages of joints, this medicine was supposed to be contra-indicated in such cases—nay, it was considered to be unsafe practice to push mercury to the extent of salivation in this and similar diseases, which were regarded as of a highly scrofulous nature, until he led the way, showed its perfect safety, and demonstrated its superiority over the other measures previously in use.

That mercury, given until the system is brought under its influence, is capable of cutting short morbus coxæ in its early stage, the cases originally published by Dr. O'Beirne, and which have appeared since, sufficiently prove: yet, notwithstanding the strong testimony in its favour, this plan of treating the disease does not appear to be carried out to the extent it deserves; and I have brought the foregoing cases before the Society with the object of recalling the attention of surgeons to its value in this disease.

When we bear in mind how much pain and suffering attends morbus coxæ, if it is allowed to pursue its ordinary course, and this not for days only, but often prolonged through weeks, or months, or years; and that when the patient recovers, he recovers with a shortened, deformed, and wasted limb, which incapacitates him from filling any active employment, while the disease in some instances has a fatal termination, we can appreciate the importance of the improvement in its treatment introduced by Dr. O'Beirne, by which the disease is cut short in its first stage, the pain and suffering to which the patient would otherwise have been exposed avoided, and a cure without any deformity brought about.

In order to insure all the benefit which mercury is capable of effecting, the treatment should be commenced at as early a stage of the disease as possible. Mercury, although almost a specific in one stage of this complaint, cannot be expected to have such an effect when the disease has advanced to complete disorganization of the joint—indeed, the same remark applies to many other diseases, and to many other remedies besides mercury in morbus coxæ; a medicinal substance which is an active remedy in one stage, proving either useless or positively injurious in another stage of the same disease. This perhaps

may be one reason why a plan of treatment which possesses so many advantages, is not more generally adopted; it unfortunately too often happening either that the patient neglects to seek advice in time, or the disease is overlooked or mistaken in its early stage, and the treatment is only commenced at a period of the disease when the same amount of benefit cannot be expected from the exhibition of mercury.

In order to insure the beneficial effects of mercury in morbus coxæ, it is absolutely necessary that the joint should be maintained in a state of perfect rest; the patient is of course to be confined to bed, and all motion strictly prohibited. When the treatment has failed, it has probably been owing more to neglect of this precaution than of any other. It is impossible in the majority of cases to make either the patient or his parents comprehend the necessity for absolute rest of the joint; as soon as the patient obtains some relief from pain, he is inclined to get up and move about; and his parents, under the influence of old-fashioned prejudice, that "confinement to bed will weaken him," do not interpose to prevent it: the consequence is, that the disease progresses, and the mercurial plan of treatment is brought into undeserved discredit. For this reason, the treatment of private patients labouring under this disease is less satisfactory than of hospital patients: in the latter we can enforce the measures which we consider necessary, and we are sure that they will be carried out; whereas in private practice most of those whom I address probably know from experience that we seldom can have the same assurance.

In the majority of cases, it appears to me to be advisable, in addition, to take blood from the vicinity of the joint by means of leeches or cupping, or both, and the nearer to the affected part the better; hence leeches over the front of the articulation often give more relief than cupping above the trochanter. The local abstraction of blood is not absolutely necessary, as Dr. O'Beirne has shown, but as it generally contributes to relieve the pain, I have always employed it. Subsequently, counter-irritation, by means of blisters in the vicinity of the joint, will generally be advisable; they were employed in each of the cases detailed above.

Notwithstanding that the plan of treating morbus coxæ by bringing the system quickly under the influence of mercury, has been before the profession for some years; and although it possesses many advantages over other modes of treating this disease, surgical writers do not appear to be aware of its full value. If we turn to works on surgery, or to special treatises upon this disease, we find it insisted on by few, the name of the surgeon who introduced the practice hardly mentioned, and scarcely a reference to the published cases which have been successfully treated in this country; arguing either that surgical writers are not generally aware of its advantages, or if they have employed it, they cannot have done so at the period of the disease to which the treatment is most applicable, or observed the precautions in its administration originally pointed out by Dr. O'Beirne.

In the foregoing remarks, I have confined myself to the immediate subject of my communication to the Society, and have contented myself with noticing the power which mercury possesses of cutting short hip-joint disease in its first stage, and of thus saving the patient from the pain which he would necessarily have undergone, and from the deformity which would have ensued, if the disease had been allowed to pursue its usual course. I am aware that Dr. O'Beirne has employed mercury with equally beneficial results in the more advanced stages of this disease, as well as in ulceration of the cartilages of other joints, and that since the year 1834, when he first called the attention of the profession to it, his experience of its value has been most ample; and I shall only add, that I hope he has not forgotten the promise he then made, to communicate to the profession the results of his further experience of mercury in these diseases.

When morbus coxæ has gone through its several stages, shortening of the limb to a greater or a less extent is always the result, and the shortening and deformity are always more considerable if the patient was very young at the period of the attack than when the disease occurs after the bone has arrived at its full development. Until within a few years the shortening of the limb was

explained by the luxation of the femur on the dorsum ilii, which was believed always to take place, in consequence of the acetabulum being widened and the head of the bone diminished in size by the destruction of the articular cartilages and caries of the bones, when the muscles inserted about the great trochanter were supposed to draw the head of the bone out of the acetabulum upon the dorsum ilii—in fact, from the constancy with which this was believed to occur, the disease was named by the French surgeons "Spontaneous dislocation of the head of the femur," under which title it is described in Boyer's treatise on Surgery.

The results of more recent pathological investigations have shown that dislocation of the femur occurs less frequently than was at one time supposed; I believe myself that it is a rare result, and as I have some specimens of the disease here which illustrate it (which I wish to present to the museum of the College), I will take the opportunity to make one or two remarks upon the point in question.

Those who look upon spontaneous luxation of the head of the femur as the ordinary result of morbus coxæ, appear to me to argue as if they supposed the muscles about the hip-joint to be in no way implicated in the disease; and that as soon as the acetabulum becomes widened, and the head of the femur diminished by caries, these muscles come into play, and draw the head of the bone out of its socket. Now, we know that, in the early stage of this disease, the glutæi muscles are wasted and flaccid, and that when the disease has advanced to the formation of matter, all the parts are more or less agglutinated. It is obvious, therefore, that the glutæi muscles, which are atrophied from the first, and suffer along with the other tissues in the advanced stage of the disease, must be incapable of acting as they would in health; while, even if their fibres were unaltered, as long as the capsular ligament preserves its attachments, they could not draw the head of the bone upon the dorsum ilii. Spontaneous luxation of the head of the femur consequently, instead of being a common effect of morbus coxæ, ought to constitute the exception to the general rule, and should only be observed in very young subjects, in whom, from the condition of the bones, caries make greater ravages; and in such even it probably seldom occurs unless some exciting cause capable of producing it comes into operation at the period.

The preparations upon the table are four in number. In three of these, I may observe, the left hip-joint was the seat of the disease, as it was also in two of the three cases I have detailed to the Society. These morbid specimens were taken from subjects who died at variable periods after the disease had run its course. One is from a man in whom the disease had gone through its stages, ending in anchylosis, twenty years previously, and who, up to his last illness, had been able to earn his bread as a labourer. The head of the bone has not left the acetabulum, and osseous matter in great abundance has been thrown out around it.

The second is from a young female who lived for six or seven years afterwards, and died of disease of the brain. The third is from a boy who died of dysentery before anchylosis had been quite completed. In the two latter preparations, it will be seen that the head of the femur has not been destroyed, nor has it escaped from the acetabulum, but it rests against its upper edge, the greater part of the head of the bone being still in the cavity, while osseous matter has been thrown out about it, uniting the two bones to one another here.

The other preparation is from a boy, aged 11, who died in the advanced stage of the disease; in this instance the right hip-joint was engaged, and dislocation of the head of the femur upon the dorsum ilii had taken place shortly before death; the acetabulum, it will be seen, is very shallow, and the head of the femur diminished in size. This patient, I may observe, laboured also under scrofulous disease of the kidney on the same side, pus was passed with the urine, and on examination the pelvis of the kidney was found to be enlarged and full of pus; the ureter also was increased in size, and its coats much thickened. He had suffered during life from symptoms simulating urinary calculus, and the coats of the bladder were found to be thickened, and its

mucous membrane ulcerated. Here no attempt at anchylosis had been made, as the patient died very soon after the luxation occurred; the point where the head of the femur rested upon the dorsum ilii is marked by a different shade of colour from the rest of the bone.

As I am upon the subject, I would wish to make one remark upon an operation which was practiced many years since by the late Mr. Hewson of this city, and which has been recently revived—I allude to excision of the head of the femur in certain cases of morbus coxæ in its advanced stage. Now, this operation, I presume, would not be undertaken unless dislocation of the head of the femur had taken place, and as this appears to be rare, the cases must be few in which it could be called for. In addition, before luxation of the head of the femur can occur, the acetabulum must be implicated in the disease as much as the femur. I cannot understand, therefore, what great benefit can be expected to result from the operation unless the whole of the carious bone can be removed, which is out of the question. I can understand, indeed, that if the head of the bone becomes detatched by the caries, its removal as a foreign body may be required; or that the incision down to the diseased bone in the operation, by allowing a more ready outlet to the matter, may relieve the constitutional irritation, and dispose the parts to recover themselves; the latter end could, however, be accomplished by milder measures; and notwithstanding the high authority under which this operation has been reintroduced, it is one which it is obvious can be very seldom necessary, and from which the benefit to be expected must at best be doubtful.

Dr. Henry Kennedy, referring to the employment of mercury in this disease, observed, that it was a mistake to suppose it was universally attended with success, for it was well established that cases were met with in which it did not exactly answer. Two or three such instances had fallen under his own notice. In one of them the disease proceeded in its course though the patient was brought under the full influence of mercury; and in the other, after a temporary improvement, a relapse occurred at the end of a week, and the disease then went on as in the former instance.—*Dublin Medical Press*, May 30, 1849.

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42. *Syphilitic Tubercles on the Larynx—Tracheotomy—Cure.* By M. Ricord.—A man, thirty-three years of age, was admitted, on the 5th of June, 1849, into the Hôpital du Midi, with tertiary syphilitic symptoms. His left shoulder and arm were affected with a tubercular eruption, and the scrotum presented the same condylomatous aspect. There was, besides, great dyspnœa and loss of voice. These symptoms were referred to an indurated urethral chancre, contracted in 1838, for which no mercurial treatment had been used. M. Ricord diagnosed syphilitic tubercles in the larynx, similar to those appearing on the shoulder and scrotum, resting his diagnosis on the following reasons: The tubercles had existed these four years, and the hoarseness and dyspnœa three and a half, though the latter had become aggravated only two months ago. No member of the patient's family, either living or dead, had ever had any symptoms of consumption, and the examination of the chest (very imperfect, from the noisy breathing) presented only a very slight dullness under the left clavicle. The man was put on the usual treatment of tertiary symptoms—viz., on iodide of potassium; and it was hoped that the well-known and rapid effects of this salt on tertiary syphilis would obviate the necessity of tracheotomy. But the very next day after admission, the patient was seized, towards the evening, with such fearful fits of dyspnœa, that he walked about the gardens and yards the whole night, gasping for breath. At 7 o'clock in the morning, when M. Ricord began his visit, it was evident that no resource but tracheotomy was left; and though the eminent surgeon was ill of cholerine, and his pupils were entreating him to allow one of his colleagues to act in his stead, he made preparations to operate at once. The patient could hardly draw his breath when he was brought in; and scarcely had M. Ricord begun his incision, when the subject was perceived to be a corpse. This was an awful moment, and the bystanders thought all was over with the poor man, when M. Ricord rapidly cut away four rings of the trachea from the cricoid cartilage downwards; and

setting aside every feeling of repugnance, he applied his mouth to the aperture, rendered very repulsive by a recent blister, drew with his breath the blood and pus which were obturating the trachea, and replaced these obstructing fluids by a vigorous insufflation of air into the patient's lungs. This being repeated rapidly fifteen or twenty times, restored life to a corpse which revived amidst the deafening applause of a numerous concourse of pupils. Thoughtless of his besmeared face, and mouth impregnated with purulent matter, the skillful and generous surgeon would not think of himself until he was quite sure that his patient was beyond the danger of suffocation.

Those who witnessed this scene will hardly ever forget the prompt and truly philanthropic conduct of M. Ricord. The tracheal aperture was kept open by curved forceps, fixed by bands passing under the axilla; and the patient was put upon emollient fumigations and iodide of potassium. On the 9th, he could take broth, had no fever, and spoke. On the 11th, he smoked a pipe by stealth, spoke, and breathed somewhat through the nose: M. Ricord replaced the forceps by a canula. On the 14th, every one was astonished to witness the extraordinary effects of the iodide; the patient laid the canula aside, put on his cravat, and breathed easily through the nose. On the 22d he spoke and breathed with ease. The eventual cure was now no longer doubtful, and the patient was ordered to go on with the same treatment.—*L'Union Médicale.*

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43. *Traumatic Tetanus treated by Chloroform.*—Dr. Samuel G. Wilmot relates, in the *Dublin Medical Press* (July 18, 1849), a case of acute traumatic tetanus in a boy 12 years of age, treated by chloroform. Its administration always afforded a temporary suspension of the spasms, but without the least permanent abatement of the disease, which terminated fatally.

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44. *Case of Suffocation from the Closure of the Glottis by a Piece of Meat.* By R. P. Cotton, M. D.—A maid-servant, aged 23, in the family of a well-known surgeon at Kensington, was waiting at dinner, and after removing one of the dishes, ran hastily into the kitchen, in a state of extreme distress, which she was unable to explain otherwise than by pointing to her throat: in a few moments she fell upon the floor struggling violently, and in another minute was dead.

An opening was made with all possible expedition through the crico-thyroid membrane, but the moment when this might have saved, her life had unhappily fled. All was conjecture as to the cause of this painful event: the throat was examined without leading to an explanation; on looking into the mouth nothing but a large amount of saliva and mucus could be seen; and, although there was a suspicion of the real history of the case, nothing could decide it prior to the *post-mortem* examination.

On the following day, by an order from the coroner, I proceeded to examine the body, when the following appearances presented themselves:—

The face and neck were much congested, and of various shades of blue and purple, and the superficial veins generally distended with very dark blood, whilst the intervening skin was pale and flaccid.

Both the abdominal and thoracic cavities were in a healthy condition, but the organs within them greatly engorged with a dark fluid blood.

On removing the larynx with the neighbouring parts, a piece of meat, weighing about six drachms, was found firmly wedged in between the alæ of the thyroid cartilage, pressing the epiglottis downwards, and the arytenoids forwards, so as completely to close the opening of the glottis; the former was somewhat twisted upon itself, in such a way that, whilst one of its lateral margins was pushed downwards upon the posterior surface of the latter, the other was turned upwards, as if from a violent expiratory act, taking place probably as a last effort. The morsel was so firmly pressed forward beneath the base of the tongue, that had the mouth been opened during the struggles of the patient, it would certainly have escaped notice; and a probang passed down the œsophagus might easily have slipped over it unobserved. The piece of meat was of a triangular shape, and placed with the apex forwards, the base of the triangle measuring two inches and a quarter, which will sufficiently account for it not

passing the thyroid cartilage, the width of which, at the commencement of the superior cornua, does not commonly exceed an inch and a half, and is not very readily extended.

Although this case adds to the number of those chiefly interesting from its rarity, it is not without its practical lesson. Where sudden asphyxia occurs under similar circumstances, a recollection of it might lead to suspicion of the cause, and the life of the unfortunate person be preserved.

I think that in most instances it would be found an extremely difficult operation to remove the morsel with the fingers or forceps, and the attempt might increase the spasm, and be the means of losing the few precious moments at our disposal; certainly, in such a case as the present one, it would have been useless, even had the meat been less unfavourably situated, both from the urgency of the symptoms, and the violent struggles of the patient. I believe that laryngotomy or tracheotomy would be the proper practice, and might be performed with the less hesitation from the comparatively little risk attending it, as the opening could be closed very shortly after the real cause of danger had been removed, and which the operation itself might effect by admitting air from beneath, and thus forcing up the epiglottis.

It is an interesting question, whether the presence of foreign bodies lodged in the pharynx or upper part of the œsophagus, and pressing more or less upon the larynx or trachea, can produce suffocation by the supervention of spasm.

All the fatal accidents from imperfect deglutition on record, with, perhaps, one exception, have resulted from mechanical closure of the glottis; and as there is abundant evidence that pressure upon the vocal apparatus, produced by tumours, or foreign bodies lodged about the thyroid cartilage, has given rise only to stridulous breathing, far short of threatening suffocation, it may, perhaps, be inferred that, as a general rule, spasmodic action of the glottis, unless caused by a severe amount of obstruction, is insufficient to cause death. The truth can be ascertained only from experience; but the cases hitherto supposed to show that mere spasm may be fatal, are far from conclusive on the point. In that referred to above, which is recorded in the second volume of the 'Dublin Hospital Reports,' although but slight pressure existed upon the trachea, the right subclavian artery, which took an irregular course, was wounded by a piece of bone, and the consequent effusion of blood into the cellular membrane of the neck must have greatly complicated the result. Dangerous spasm would, of course, be less likely to result from tumours, in consequence of their gradual development; and in the case of foreign bodies, much might depend upon their position. If upon, or closely bordering to, the aperture of the glottis, a permanent spasm would be likely to result from the reflex attempt to resist their entrance, similar to what occurs from the presence of irrespirable gases, and in drowning; but if at a lower point, the muscular movements would more probably be of an irregular kind, chiefly directed to their dislodgement, and not so particularly to the protection of the glottis. As the matter, however, can be decided only by an examination of cases, and these are, happily, not very common, I considered the present one should be recorded; for although it does not deny the possibility of spasm, it contributes to the list of the few already known in which such did not produce the fatal result, and may thus afford negative evidence that death in such cases is comparatively rare from that cause.—*London Medical Gazette*, Dec. 8, 1848.

OPHTHALMOLOGY.

45. *On Sympathetic Ophthalmia.* By Prof. Jacob.—In treating of Inflammation of the eye from injury, the fact that such inflammation sometimes extends to the other eye should not be forgotten. The disease so propagated should even perhaps be noticed as a distinct species, or variety at least, of ophthalmia or iritis, in consequence of its origin, nature, and progress; and it is so considered by Dr. Mackenzie, who calls it Sympathetic Ophthalmia, or *Iritis*

Sympathetica. Whether or not it is to be attributed to what is called sympathy, or a certain participation in nervous influence, it is unnecessary to discuss here; all that is required for practical purposes is to establish the correctness of the view which assigns the one inflammation as the cause of the other. Of this it does not appear that there can be any rational doubt; every surgeon of experience could probably verify the inference by reference to his own practice; indeed, the consequence has so often been observed that the wonder is its not taking place oftener, for fortunately it is not a frequent one. In treating severe injuries of the eye, and giving opinions and advice respecting them, it is therefore necessary to bear this in mind, in order that every measure adapted to the alleviation of inflammation and irritation should be adopted, and that the possibility at least of extension of the disease to the other eye should be pointed out to the patient.

The *sympathetic* inflammation is a general inflammation of the eyeball. There are the usual sclerotic vascularity, general haziness of the transparent parts, alteration in colour of the iris, and defective sight at first; followed by still greater change of colour in the iris, amounting to green or yellow tint, contraction, irregularity, and adhesion of the pupil, opacity of the lens and its capsule, and total loss of vision. How far this disease depends upon injury of some particular parts of the wounded eye does not appear to be settled. Dr. Mackenzie seems to think that it takes place most frequently when the ciliary ligament (*annulus albidus*) is injured, and that extensive lacerated wounds, including the iris, also provoke it. This is not improbable, considering the great number of nerves passing into these parts, and the great vascularity of the iris; but the observation, in fact, means that great injuries, which necessarily involve the iris and choroid membrane, are more frequently followed by this consequence than smaller ones, in which the cornea or sclerotic only are wounded. Such great injuries are not, however, so often followed by this sympathetic ophthalmia as might be supposed from accounts given of particular cases; on the contrary, they so frequently occur without this result, that I am inclined to think it is to be attributed to some other cause than the mere wound or laceration. I believe that it arises more from constitutional diathesis than the local destruction; that it, in fact, takes place in consequence of the depletion, denial of food, confinement to the house or bed, and severe medical treatment resorted to for the original injury, and especially in subjects previously debilitated, or, as may be said, poisoned by tobacco, alcohol, and perhaps opium, habitually consumed, and living without properly cooked nutritious food, pure respiration, or regular bodily exercise. It has, I believe, been most frequently observed amongst besotted "operatives," and idle young men, who abandon themselves to sensual enjoyments and an irregular life, as well as amongst young persons of either sex, badly fed, clothed, and lodged. Specific constitutional disease, especially scrofula and rheumatism, or even syphilis, are probably predisposing causes, and greatly influence the progress and consequences of the disease. This view is strengthened by the fact that in all injuries of the eye, as well as in operations, the amount and effects of the inflammation are not at all in proportion to the extent of the injury or division of the parts, but evidently depend upon some state of the system which cannot be detected at the time.

The sympathetic inflammation generally comes on in the uninjured eye in about a month or six weeks after the accident, and generally in cases where the injury in the other has been mismanaged or neglected, and where the consequent inflammation has not been subdued, or has returned after subsiding. It is usually of destructive character, and accompanied by effusions, opacities, adhesions, and other disorganizations, causing discoloration and loss of contractile power in the iris, adhesions, and closure of the pupil, cataract, and amaurosis. The surgeon must, therefore, not only give a guarded prognosis respecting it when it does occur, but in all severe injuries of an eye must warn the patient that such a result may follow disregard of proper precautions. It has been observed by Dr. Mackenzie, that this inflammation does not follow operations for cataract, and I have I think found it so, although I cannot say that such is always the case. This is, I believe, because the patient seldom

throws off all restraint, or resists all control or treatment, as he often does when he finds that an eye is irreparably destroyed by accidental injury. Inflammation after the operation of extraction, or after the old and destructive operation in which the lens is broken up or depressed through the sclerotic coat, is always treated more or less carefully from its commencement, and thus is the danger of sympathetic inflammation of the other eye diminished. This point is not unworthy of observation when it is recollected how often patients anxiously inquire whether any danger is to be apprehended to the other eye from an operation on the opposite one, and how necessary it is to qualify an assurance of safety in that respect by a warning as to the consequences of exposure to weather or irregularity as to food or habits. Although the prognosis in cases of sympathetic inflammation of the eye must be unfavourable, the surgeon should not despair of success if well-directed efforts to save the organ be steadily continued. It is also to be borne in mind respecting it, that, notwithstanding its destructive effects on the iris and lens, the retina escapes destruction in its progress more frequently, perhaps, than in other inflammations of the eyeball, unless the disease causes total disorganization, with irregularity in form, of the entire globe. I operate for artificial pupil on eyes which have suffered from severe injury, or this sympathetic inflammation, with more confidence than upon those having the pupil closed by the other species of disease.

The treatment of sympathetic inflammation of the eye requires an accurate estimate of symptoms and remedies. There is no empirical or specific cure for it, but rather a judicious dietetic and medical correction of an unhealthy state of the nutritive function. Food of nutritious quality and easily digested should be given in moderation, and removal from the bed-chamber to a well-ventilated room of uniform temperature should be enjoined, if the patient has been confined for some time to one apartment. Even change of air should be resorted to, and gentle exercise abroad, if the season permits. The medical treatment must depend very much on the previous treatment of the inflammation which followed the original injury of the other eye. Depletion by abstraction of blood will not probably be called for; purging, except in moderation and merely for the removal of accumulated intestinal contents, if any such there be, may be necessary; and correction of acidity of the stomach, as indicated by urinary deposit, should be effected. Mercury, if previously given to the extent of affecting the constitution, can scarcely be again administered with advantage, unless a considerable period has elapsed since its discontinuance; its character as a remedy in inflammation, however, stands so high that the practitioner can scarcely refrain from returning to it, should it appear probable that its influence has ceased to operate. If simple debility from interrupted nutrition and severe medical discipline suggest such a course, those preparations of cinchona or quinine best adapted to the stomach and system at large must be given: and if a scrofulous or rheumatic diathesis be present, suitable specific remedies must be adopted. Iodide of potassium should have a fair trial, either alone or in combination with bark, and even colchicum, should there be evidence of rheumatic or gouty constitution. Turpentine may also have a trial. Locally, belladonna smeared on the skin round the eye, and its effect maintained by a lotion containing the extract, may, with safety, and perhaps advantage, be applied; although during the inflammation the iris may not yield to its influence. Blisters to the temple appear to be more efficacious in cases of this kind, where the inflammation is of slow and remitting character rather than active and unabating.

It seems to be suggested, although not perhaps unequivocally recommended, to cause total destruction of an injured eye, when sympathetic inflammation of the other eye ensues. No sufficient evidence is, however, on record of the value of such a violent proceeding, the arguments in favour of it appearing to be founded on the assumption that the removal of a foreign body lodged in an injured eye has prevented, if not arrested, the inflammation of the other; and upon the practice of farriers who, in the intermitting ophthalmia of horses, attempt to save one eye by the destruction of the other. That a foreign body lodged in an injured eye should be removed, even at the risk of producing the deformity which attends total shrinking of the eyeball, there can be no doubt:

if it be visible, the cornea must be freely divided as in the operation of extraction, and the curette or forceps boldly used; and if invisible, even the extirpation of the eye may be necessary. To "lay open" an eye with the view of causing its entire destruction by suppuration, because it continues in a state of irritation or even chronic inflammation, while the other eye suffers from sympathetic inflammation, does not seem to be justified either by theory or practice. Sympathetic inflammation does not appear to ensue from the amount of injury or inflammation of the wounded eye, but rather from a combination of local and constitutional causes, and often comes on after the first mischief has ceased to operate: it is caused, it is true, by the injury and its consequences, but once set up it is probable that it cannot be allayed by any such expedient as this. It is also to be recollected that opening the eyeball to cause suppuration and discharge of its contents, as sometimes must be done in cases of prominent staphyloma, is often followed by most formidable tumefaction and inflammation, involving the entire contents of the orbit; and continuing quite long enough to exasperate a sympathetic inflammation.—*Dublin Med. Press*, March 21, 1849.

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46. *On the Removal of Osseous Cataract.*—W. White Cooper, Esqr., Senior Surgeon to the North London Infirmary, for diseases of the Eye, relates (*London Journal of Medicine*, July, 1849,) four cases of osseous cataract, three occurring in his own practice, and one in that of M. Desmarres, and offers the following remarks on this affection.

"Ossification of the lens itself is extremely rare. Mr. Tyrrell relates one instance of it, where the capsule was opaque and thick, and contained a mass about equal to one-third of the original lens, hard and brittle, so that it broke on attempting to separate it from the capsule; it was the result of a blow, and was extracted from the eye of a lad of fifteen, who speedily recovered from the operation. A well-marked case is also related by Mr. Wardrop; it was from an eye sent to him by Mr. Allan Burns, of Glasgow. On dissecting back the choroid, the posterior chamber was found filled with a white pulpy mass; and on dividing the crystalline, its central portion was found converted into hard bone. The external laminæ of the lens were soft, those near the centre more consolidated, and the central portion itself of a deep brown colour, perfectly osseous, and exhibiting a laminated structure. Case IV. is another example. And it is worthy of remark that, in two out of the three instances, this remarkable change was the result of a blow upon the eye; of the third there is no history.

"Ossification of the capsule of the lens is the most frequent form of Osseous Cataracts. The character is that of a shell of bony matter irregularly deposited, some parts being thick, others as thin as tissue paper. The colour is yellowish, and when viewed in the eye, appears as if dotted with white paint. For the following analysis of the cataract extracted in Case I., I am indebted to Dr. Hoffman, of the Royal College of Chemistry. "The ash left on incineration was found to consist principally of phosphate of lime; it contained besides small quantities of sulphate of lime, and traces of sulphate of potassa and chloride of sodium. It, therefore, has a very analogous composition to that of bone."

"The agonizing pain caused by these cataracts is of a neuralgic character, being the result of the constant irritation of the iris by the pressure of the hard body. So severe is it at times, that it causes temporary delirium; and I have known two instances in which the patients were driven into the pernicious practice of opium-eating, to drown their sufferings in stupor.

"There is one point in the history of such cases as those I have related, which cannot fail to strike the observer; that, despite of the difficulty and duration of the operation, the amount of violence inflicted on the eye (which far exceeds that of the ordinary operation of extraction), and the diseased state of the organ itself, which might be supposed to render it prone to inflammation, the recovery is, in the majority of instances, rapid and satisfactory. The unusual step adopted by M. Desmarres, of cutting away a large piece of the cornea, is of course an exception; and the alarming hemorrhage described resembles that which occasionally follows the removal of a staphyloma, and is not to be an-

ticipated unless such a proceeding be practiced. It certainly may happen, as occasionally, though very rarely, occurs after extraction, that severe hemorrhage may arise from a branch of the central artery of the retina, but in the three cases of this, with the particulars of which I am acquainted, there was good reason for supposing that a diseased condition of that vessel rendered it incapable of contracting.

"In the performance of the operation, the almost entire obliteration of the anterior chamber by the projection of the lens and iris, renders it extremely difficult to pass the knife across it; in such a case, it would be found easier to direct the incision obliquely. That should be free; and if the cataract knife do not make it of sufficient size, the blunt-pointed sabre knife, cutting on the convex edge, will enlarge it with facility. In the event of the adhesions to the cornea being so extensive as to preclude the possibility of performing the operation in this manner, it may become a question whether an incision directly across the cornea may not be the best mode of proceeding; the object in view is not to give sight, but simply to relieve suffering, and it must be familiar to many, that similar wounds of the cornea inflicted by accident unite kindly if judiciously treated. The great difficulty, however, is the extraction of the cataract. The iris having lost its elasticity, and being bound by adhesions to the lens, and possibly to the cornea, does not yield to pressure; and the lens, being solid, cannot be forced through the contracted pupil, even after the adhesions have been divided, with such an amount of force as can be prudently applied. The better way, then, is to break down the osseous shell and remove it piece-meal, having previously divided the adhesions by sweeping round the margin of the pupil with a fine iris knife. Before placing the flap in apposition, a careful examination should be made, to see that none of the fragments are left. After the lids have been closed, two or three folds of rag, dipped in cold water, should be applied to the eye so long as is felt agreeable, and a full dose of hyoscyamus administered.

"Many persons cannot take any preparation of opium, without subsequent nausea and sickness; and, therefore, hyoscyamus is to be preferred as a sedative after operations on the eye. A tincture, sent to me by Messrs. Taylor, of Vere Street, made from henbane dried rapidly at a low temperature, then placed in hot bottles which are immediately sealed up, possesses so much strength, that thirty drops is a full dose. This I usually administer after eye operations, with the best effect."

MIDWIFERY.

47. *A Report upon the Use of Chloroform in fifty-six cases of Labour, occurring in the Dublin Lying-in Hospital.* By JOHN DENHAM, M. D., Ex-assistant Physician to that Institution. (*Dublin Quarterly Journal of Med. Science*, Aug. 1849.)—This report contains the results of a series of observations, instituted by Dr. Denham, at the instance of Dr. Shekleton, the present master of the Dublin Lying-in Hospital. The subject was taken up without the slightest intention, Dr. D. states, of making out a case, either for or against the use of chloroform.

The patients upon whom the observations were made were generally healthy, but in no instance were they selected as being likely to prove favourable or the reverse to the use of chloroform; nor was it administered in any case where there was a reason to suspect the existence of organic disease in any vital part. It was given:—

1st. To produce insensibility during operations.

2d. To relieve intensity of suffering.

3d. To quiet particularly noisy patients.

4th. By way of experiment, in ordinary cases, where there was no very definite object in view.

"When a patient in labour," observes Dr. Denham, "is first brought under the influence of chloroform, it will generally be found that the pains are diminished

in force, frequency, and duration. After some time they generally regain much of what they had lost, and though apparently weaker, they yet seem to tell with equal or even better effect upon the progress of the labour. The muscles of animal life are first affected, and if a complete state of anæsthesia be induced, the action of the uterus is also impaired. If the chloroform be suspended for a short time, both sets of muscles soon regain their usual power. The effect upon the sensorium is very variable; some pass rapidly into a state of insensibility, while others become boisterous and difficult to manage; but in all who can be induced to use it sufficiently long, it appears to mitigate the feeling of pain, to modify the impression, or remove the recollection of it. The pupils remain natural during the first or excitable stage, but when anæsthesia is fully induced they almost invariably become dilated. Of its effects upon the os uteri I cannot speak very confidently, as we seldom gave it in the first stage of labour; so far as I have seen, however, I believe it does not retard, but rather tends to promote dilatation of it. That the vagina and os externum become relaxed there cannot be a doubt. We did not remark the perineum to yield more in proportion than the other soft parts. In no case did we witness injury to the child, even in the remotest degree."

The cases of *natural labour* in which chloroform was administered in the Dublin Lying-in Hospital, are divided by Dr. D. into three classes:—

1st. The ordinary every-day case, in which the labour was short and comparatively easy, and where the patient would have soon got well whether it was given or not.

2d. Cases where some interference was necessary, and where the chloroform was given with marked advantage, causing the labour to advance, while at the same time it saved the patient from a very considerable amount of suffering.

3d. Cases in which the chloroform appeared to be not only useless, but, when persevered in, positively injurious.

Under the first division, Dr. D. gives a brief outline of *seven* cases of short and easy labour, where the parts being soft and cool, while, at the same time, there was an abundance of room, the patients were "made well" while under the influence of chloroform, with a very happy effect. Five of them denied all consciousness of pain, and several of them were ignorant of the time when their children were born. Doubtless, these women, if left to nature, would have had an easy and safe delivery, followed by a good recovery, and in some the labour would probably have been completed in a somewhat shorter space of time; but, on the other hand, we cannot, we ought not, to conceal from ourselves the fact, that they escaped a considerable amount of pain and mental anxiety, and that they all had good recoveries, without a single bad symptom, either at the time or subsequently.

Two examples are given of the second division of natural labours, in which the good effects of chloroform were more decidedly evident. One of these we shall quote:—

"Case VIII.—Catherine M'Loughlin, aged 18. She had been twenty-one hours in labour before admission; on examination, the head was found low in the pelvis; the pains were almost constant, but the labour was not making much progress, nothing at least in comparison to the severity of the pains, each of which were accompanied with loud screams, and constant complaints of intense suffering; pulse in the intervals only 72. Chloroform was administered, and she was kept completely under its influence from seven minutes after 9 till thirty minutes after 10, when her child was born; in fact, the moment we relaxed in the slightest, she became so violent and unmanageable as at once to require a repetition of the chloroform. I shall give a few of the notes taken at the time: 'Pulse 72, intermitting; stertor in four minutes from first inhalation; in seventeen minutes pulse rose to 94, regular; complete anæsthesia in forty minutes; pulse 120 during the pain; awoke and struggled violently; chloroform resumed at sixty minutes; pains short and strong; at one hour and thirty minutes, struggling violently again, more chloroform given; each inspiration is followed by an expulsive effort; child born in ten minutes after; placenta was soon expelled; no hemorrhage. In half an hour after she was perfectly sensible, and expressed

a total unconsciousness either of pain or the birth of her child.' She recovered without a single bad symptom, and went home well on the eighth day."

The patients, Dr. D. observes, in this form of labour, are often of a nervous temperament, with great irritability of fibre. "The delay does not arise from inertia or disproportion, and yet, although the pains are severe and constant, the labour is tedious. The prospect in such cases is by no means cheering; hours of anxious waiting, during which we are importuned by the friends, and perhaps unnerved by the sufferings of our patient, generally ensue. In such cases chloroform will be found a very valuable remedy, particularly when the delay is in the second stage.

"Opiates, it is true, often benefit such cases; but to insure their effect they must be given in large doses, when they generally produce a complete suspension of all uterine action, perhaps for hours, while we can regulate the giving of chloroform so as only to allay the irritability of fibre, and quiet any unusual suffering, without interfering for any great length of time with the progress of the labour. In the cases here given, it will be seen that the pains, while apparently diminished in frequency and force, yet produced a better effect, and hastened on the labour."

Under the third division, Dr. D. relates *five* cases; one of these we will give.

"Case XI.—Eliza Lawler, aged 23; first pregnancy. On admission the os was nearly fully dilated, soft parts relaxed, pelvis normal; pulse 66 in the intervals, 90 during the pains; pains constant and regular. The state of anæsthesia was soon induced, and easily kept up, as she only required four drachms of chloroform in two hours. In twenty minutes after she began to inhale she appeared to be almost in a state of coma; some cold water was then sprinkled on her face. The pains gradually diminished, and at the end of two hours had almost entirely ceased. The chloroform was now discontinued, when the pains again returned with considerable force, and the child was born in half an hour from the time she ceased to be under the influence of it. On being questioned afterwards, she stated that she remembered everything that had been done to her, such as the cold water being dashed on her face, her feet being pricked and tickled, &c.; says that she slept very little during the time, and doubts whether she would wish to have it again or not."

Cases of this kind, Dr. D. remarks, are generally met with among what are termed difficult labours; painfully difficult to the patient, and often distressingly tedious to the practitioner, requiring an amount of experience and patient perseverance greater than any other in the whole range of obstetric practice. It is not deformity, but disproportion, with, perhaps, rigidity of the soft parts in first cases, that we have principally to contend with. The pelvis will be found somewhat under-sized, or the head of the child may be either too large or too much ossified. The advantage to be gained from the chloroform in such cases, will not be found an adequate compensation for the loss of power sustained in the muscles of animal or organic life; and were we to continue its use, I do believe that the patients would remain (doubtless in a state of blissful oblivion) undelivered for hours, or even days. It may, however, be fairly argued,—"why not give it a trial? The delay may, perhaps, arise from rigidity, or some slight amount of disproportion; and even should the pains be weakened, or put a stop to for a time, yet no other injury is likely to arise; while some of the cases given clearly go to prove that the pains, though weakened at first, yet came on more vigorously, and with better effect, after the use of chloroform than before." This we admit; but, confining ourselves to the immediate and direct effects of anæsthetic agents, I think we are warranted in coming to the conclusion that chloroform, if persevered in, will sometimes prove not only useless but positively injurious.

By these fifteen cases of natural labour, we are taught, Dr. D. conceives, that chloroform will be found applicable to many cases, useless in some, and injurious to a few. "I am persuaded," he says, "we have much to learn upon the subject; much to learn (apart from all professional notoriety and eclat) as to when we should begin to administer it, and when refrain from its use; what the best mode of using it, and how great the quantity that may be given, so as to mitigate the sufferings of our patients, and yet not interfere with the progress of the labour;

much, in fact, to learn as to the cases in which it will be found not only admissible, but really useful; not to speak of the question of time, so important, so intrinsically valuable to the medical practitioner. If the question be put,—do you use chloroform in all cases of natural labour? I answer, certainly not; first, because many labours are so rapid, and attended with so little pain, that either it is unnecessary, or there is not sufficient time to produce the desired effect. It not unfrequently happens, that the child is born before the medical attendant can possibly reach his patient.

"Some women object to its use, and unless there be a very urgent necessity, I think we should never press it on an unwilling patient, for, should any untoward circumstance arise, the chloroform will be sure to get the credit of it. In the next place, the cases that apparently require it most,—tedious and difficult labours,—are those where it often appears to be injurious, by weakening the pains, and relaxing the muscles of animal life. But, on the other hand, I must say that I have never met with a single untoward circumstance affecting the health or life of either mother or child, that would in the slightest degree deter me from giving it where I thought it desirable or necessary. I have never witnessed any of the dreadful evils described by some writers as consequent upon its use; I have never seen the blood blackened, or the brain poisoned; nor has it ever, in my hands, induced convulsions, partial paralysis, or other still more formidable consequences; and until it does, I will consider myself justified in still further investigating the subject; ever bearing in mind the maxim of Lord Bacon, that the labours of all who think ought to be to multiply human enjoyment and to mitigate human suffering; and that, for this purpose, we must observe and reason only from what we see."

The next class of cases in which Dr. D. gives the results of his experience, is preternatural labours. If there is one operation more than another in the whole range of midwifery, says Dr. D., in which chloroform is highly useful, it is that of turning; and if the discoverer of it accomplished nothing more, he has by this alone conferred a great benefit upon mankind, and largely earned the gratitude of his profession.

Dr. D. gives the brief detail of *ten* cases of turning, and states that he scarcely feels it necessary to make any observations, so well do they themselves testify to the good effects of chloroform in all such cases; and the master of the hospital is so completely impressed with the value of chloroform, that he administers it before turning as regularly as he should employ the perforator before extracting with the crotchet.

Crotchet Cases.—Of these, *twelve* are given. The necessity, says Dr. D., of using chloroform, is not so great in these as in forcep cases; neither, perhaps, are the advantages so obvious, as the operation can generally be performed without much pain to the patient, and, in careful hands, with a very small amount of danger; at the same time, when we take into account the mental anxiety inseparable from such an occasion, and when we reflect how injurious any shock, mental or bodily, may then prove, I feel assured that we will seldom err in using chloroform, and that in the great majority of such cases it will be found a valuable adjunct in rendering the patient more manageable and the operation more easily performed, independent of any advantage it may possess with reference to ultimate recovery. In two of the crotchet cases, the patients were attacked with puerperal fever, one of whom died in hospital, and the other was forcibly removed by her friends.

The effect of the chloroform in one case of deformed pelvis, was very striking. It was not given until great difficulty was experienced in bringing down the head with the crotchet, the patient at the same time complaining greatly of the pain produced by the traction. At this stage of the operation she was thrown into a state of anæsthesia, after which the head was brought down with about one-half the force that had been previously used, and without any pain to the mother. The rapid recovery of the patient proved that no undue force had been used, and that the soft parts had not been injured. In none of these cases was there hemorrhage to contend with, nor did any untoward symptom arise, either at the time of the operation or subsequently, that could be ascribed to the chloroform. There is one other point to which Dr. D. directs attention

to, namely, the giving of ergot with chloroform. In some of the cases this practice was adopted, and in one or two with marked effect, as it produced a decided increase in the pains, though not sufficient to complete the labour. The same practice was adopted in other cases, not now under consideration, with the best results; and in no case did it seem to do harm. Combining ergot of rye with chloroform may, therefore, be considered both safe and judicious where circumstances call for it.*

Forceps Cases.—Dr. D. gives a rapid outline of *seventeen* forceps cases in which chloroform was administered, and states that not only were the operations facilitated, but the sufferings of the patients greatly diminished by its use; while the recoveries on the whole were above the average in such cases. In the two first-mentioned cases, either from the chloroform not being good (its purity being a most important point to attend to), or from our want of experience in the mode of administering it at the time, the patients were not got into a state of perfect anæsthesia before the operation; considerable difficulty was therefore experienced from their restless opposition while in a state of semi-insensibility. In one of the twin cases, there was an attack of hemorrhage after the expulsion of the placenta; but this Dr. D. does not think could be ascribed to the chloroform. In the other twin case, there was great difficulty in bringing down the head of the first child, a footling, and there was a considerable interval between the birth of that and the second. Was the chloroform the cause of this delay? Doubtless in some cases the pains are diminished in frequency and force, and may even be completely put a stop to during the state of anæsthesia, but they generally return with increased vigour as soon as the state of insensibility passes away. In the present case, the chloroform was discontinued from the birth of the first child, until the forceps were about being applied to extract the second.

There is only one death to record, that of M'Mahon, who died from puerperal fever, on the fifteenth day after delivery. Her removal from hospital contrary to the wishes, nay the entreaties of the master, doubtless hurried on the fatal event. This unfortunate female was the victim of seduction; it need scarcely be observed how susceptible of disease such females are, and how almost invariably fatal this disease proves to patients under such circumstances.

Of the children,—where ergot had been given,—one, a twin, was still-born. Two of those born alive died in hospital, one on the fifth day, the child of a woman who had also taken ergot and was fifty hours in labour. The second was the child of a patient who left the hospital in puerperal fever; it died on the eighth day. A review of the cases given will, Dr. D. thinks, prove, even to the most skeptical, that chloroform is not only admissible but highly beneficial in forceps cases.

Convulsion Cases.—Of these, three are related, the only ones in which Dr. D. has used chloroform. His object in giving it in these cases was not to prevent or put a stop to the fits, but simply for the purpose of mitigating the sufferings of the patients, or advancing their labours. In the first case it was given with the view of saving the patient the fear and pain incidental to all forceps operations, and in this it succeeded admirably. The second case, Dr. D. says, "is one of considerable practical interest, but I shall confine myself to the subject in question, namely, the giving of chloroform. That it did not induce the convulsions is evident, nor did we ever meet with a case where such a result could be attributed to it; although many theorists have set it down as a consequence likely to follow. It did not put a stop to the fits, but it certainly served, in the first instance, to control them, at least for a time. I do not say that it lessened them either in number or intensity, nor can it be said on the other hand, that it favoured their continuance, or tended in any way to the fatal result. In the third and last case mentioned, chloroform was given with the view of relieving the great distress complained of, and of relaxing the soft parts. These two objects were in a great measure accomplished during its em-

* Since this paper was read before the Obstetric Society, Professor Beatty confirmed the value of the practice by reading some cases of a similar nature to the Society.

ployment; for although the pains greatly diminished while the patient remained in a state of anæsthesia, and entirely ceased during the interval of sleep, yet they were all the more vigorous afterwards, and literally accomplished more during the last three hours than had been effected in the twelve preceding ones. The whole history of the case tends to the probability that the chloroform had nothing to do with producing the fits, nor was it, I feel convinced, in any way the cause of death.

"These cases, I think, do not afford any evidence that chloroform is calculated to bring on convulsions, nor that it will increase the number or add to the severity of the fits when they have already set in. Our experience is as yet too limited to enable us to decide upon this point; but, with our present amount of knowledge, we would neither recommend it as a preventive or a cure for puerperal convulsions. If there was no organic disease present, nor any determination to the head in the intervals, we would not fear to administer it where circumstances seemed to indicate its use, or when called upon to perform the operation of turning, or delivery by instruments in a case complicated with convulsions."

This report, which bears the marks of candour and ability, justifies, its author conceives, the following conclusions:—

1st. That chloroform is a most valuable agent in all turning, forceps, and crotchet cases.

2d. In some cases of natural or difficult labour, it is useful in relieving pain, and in relaxing the soft parts, and thereby advancing the labour.

3d. If given in large quantities, or if persevered in too long, it puts a stop to all muscular action. This is contrary to the opinion of Dubois, who states that it never destroys the uterine contractions, or those of the abdominal muscles.

4th. In such cases, the pains generally return with increased force when the chloroform is discontinued.

5th. It does not relax the perineum more than the other soft parts. Dubois states that it does.

6th. When organic disease does not contraindicate its use, there is little danger to be apprehended from it in midwifery practice.

7th. Chloroform may be administered to such a degree as not to take away reason and consciousness, and yet to secure the patient immunity from pain.

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48. *Difficult Parturition.*—Dr. Burden, Professor of Midwifery, read before the Belfast Medical Society, a paper on difficult parturition, which was rendered very interesting by the introduction to the notice of the Society, of two modifications of obstetric instruments which the author had designed. The following is an extract from this paper, which includes a description of the instruments and their applications. After alluding to several causes which impede the progress of parturition, and to the usual means adopted, the author thus introduces the result of his own reflections.

While attending latterly some natural but protracted cases, my thoughts often turned towards some safe means of shortening such labours.

In one, the head was so placed that its longest diameter was on the brim of the pelvis, but it did not press along the whole circumference of it, for the top of the finger could easily pass between the symphysis pubis and the head. This occupied space was felt to be about one inch broad.

In a *few* such cases, I have succeeded in lowering the occiput with a finger alone, and thus placing the shorter sagittal diameter within the brim, but in general, the finger is not strong enough, nor can it reach sufficiently high to obtain a proper hold, and the common lever is too large to pass up without pressure on the passages.

When the head is at the outlet, I have then also observed, that in every case there was about one inch of space somewhere between it and the pelvic bones. Thus, then, whether at the brim or at the outlet, an inch of unoccupied space generally exists between the head and the pelvic bones. This being ascertained, it was an easy matter to suppose that a lever, which had but one inch of breadth, could be applied in any case without difficulty or giving any pain.

The one which is on the table is, in every respect, like Lowder's, except that at the broadest part of the blade it measures only one inch. Its small size, however, diminishes its power, and therefore it is useful in such cases only as I have described, which require but a small degree of force, but these are the most numerous.

When the head is still on or within the brim, and the vertex too high, this lever being so small can easily, and without any pressure of consequence on the passages, be carried up along the symphysis pubis, and placed on the occiput, and the vertex drawn down. If stoppage be at the outlet, this instrument can be still more readily introduced between the head and ramus, where they are not in contact.

Thus, it will be perceived, that from the smallness of the instrument, it can be used without the slightest risk to the patient, for as it goes through unoccupied space, it can cause no pressure, or require any force for its introduction; and where there is neither pressure nor force, there can be no contusion or laceration. Instead, therefore, of allowing a patient to suffer for hours or days, we may, in many cases, relieve her without danger with this instrument in a few minutes.

It has been said that, while the pains are weak, to partially empty the uterus might occasion hemorrhage. This fear is altogether imaginary, no hemorrhage ever occurred by a portion of the child being taken out of the uterus. In arm presentations a part of the child gets out, and no hemorrhage takes place. In cases where a large anodyne is given, the membranes ruptured, and feet and legs brought down, a large bulk is thus taken from inside of the womb, without being followed by hemorrhage; but, on the contrary, the uterus is often partially or wholly emptied in the absence of pain, to stop hemorrhage, as where bleeding takes place from the uterus before the commencement of labour. The membranes are then ruptured for the purpose of arresting hemorrhage, liquor amnii escapes, the walls of the uterus fall in, it contracts, and the bleeding ceases. There can be no hemorrhage while the placenta is wholly attached to the uterus.

Since this lever has been made, only one opportunity has occurred for trying it. In that case, at half past 10 A. M., the womb was only beginning to open. It being the first pregnancy, and no symptoms of quick labour present, strict attention was not required. On my return at 1 o'clock, the womb was almost open, the pains had been strong, but on my re-appearance they almost ceased, being so weak that each one appeared to be but one abdominal effort, and then it was gone. This continued for some time, the womb remaining in the same condition. The os being soft and dilatable, no difficulty was experienced in pushing it over the head. Two hours after this, finding no progress made, and the occiput high up, the small lever was introduced. It was applied without either the patient or those about her being aware that this was done. The occiput being lowered, the instrument was withdrawn, and although the pains remained without improvement, yet the head kept slowly descending, and the child was born at half past 4 o'clock.

In this case, the child was small, and no doubt the pelvis was capacious; and if, when the pains continued weak for so long a time, an anodyne and some refreshment had been given, it is most probable that, when the strength had been remitted, efficient pains would have commenced and delivery accomplished by the natural efforts; but in the mean time the patient's sufferings, and the anxiety of her attendants, would have been prolonged and increased; whereas, this small lever was so placed that the labour was enabled to progress steadily, and, in one hour after its use, delivery took place; and this, be it remembered, with such weak pains that the patient scarcely felt them.

This was the first time I have ventured to use any instrument without first informing the friends, and in almost every instance, the patient herself. At the next visit, however, the operation was mentioned, and the reason given for not doing so at the time was this; that so little was required to be done that it was not worth mentioning, and the mere naming of an instrument would have created an alarm.

When the difficulties in the way of labour are still greater, so that a full-grown child's head cannot get through the passages, it becomes necessary to lessen it.

Before resorting to this most disagreeable operation, lever and forceps are first tried; when these fail, and (as some practitioners do) the patient is allowed to go on until the pulse rises and the passages become dry, hot, and painful, then delay can no longer be warrantable, even the accoucheur most averse to operations cannot now hesitate; if we are to act at all, no more time must be lost. The child's head must be opened and the brain taken out.

Opening the head, and breaking up and scooping out the brain is an operation easily performed. The difficulty lies, when this is done, in extracting the child. In such cases, there is seldom any assistance from labour pains; still the head being now of small bulk, much less than the passages, cannot throw any difficulty in the way of abstraction. The resistance is from the passage of the shoulders through the brim, but this is comparatively little, for, as the shoulders are movable, no great force is necessary to bring them through. The whole difficulty, then, consists in our being unable to use any considerable extractive power from the imperfection of our instruments.

As to the hook, it is very difficult so to fix it within the child's head as to allow of the exertion of any considerable strength; it very frequently slips, endangering the passages of the mother and the hand of the operator.

The crotchet is so fearful-looking an instrument, that I have never had the courage to use it. Even Davis's double-bladed crotchet does not answer the purpose well, for whatever part it takes hold of it tears away.

The craniotomy forceps I have latterly depended most upon. It is somewhat difficult to fix, and when properly placed, it merely, like Davis's instrument, tears away a portion of the scalp, or breaks off a small piece of bone. It requires to be fixed perhaps ten or twelve times before extraction of the head is accomplished; and with all the caution that can be used, the patient can scarcely escape being scratched by the rough edges of the small piece of bone detached from the head of the child.

Having met with two craniotomy cases in one week last winter, and experiencing the imperfection of the instruments now in use, I began to consider whether a better plan of extracting the child could not be devised. The first thought was, to provide two steel rods with a hole in one end of each, with these to place a tape round the neck of the child; but pulling all at one side it might be feared would, instead of drawing the head forward, only send the top to one side, and then the whole force would be on a cervical vertebra. Two such ligatures were then thought of and intended to be used on the next opportunity. Further consideration, however, produced the idea of a pair of strong forceps.

After maturing the plan, the strength and form of the instrument were explained to Mr. Bell of Corn Market, Belfast, who, after much pains and comparatively little cost, beautifully manufactured the instrument before you. It is more like a double lever, each blade is made very strong, that it may not have so much elasticity as to permit the points to separate far enough to slip over the head. When locked, the space between the blades, in which the head is enclosed, is much smaller than in ordinary forceps, being only two inches and a quarter. The head, after having been opened, is much smaller and does not require so much room. The nearer proximity of the blades has these advantages; the instrument does not press on the sides of the passages, and still further lessens the child's head; when locked, you will perceive that it has at the end a circular opening—in this, the neck of the child is inclosed.

When the instrument is properly applied, the end of it surrounds the child's neck, and the points rest on the comparatively strong occiput, and upon the strongest part of it. When thus fixed—and in the doing of this there can be no difficulty, as the smallness of the head would allow even a hand to pass over it—the operator has full command, and can extract as he pleases, without any difficulty to, or risk of wounding himself, or any fear of lacerating the passages of the mother.

Such is the instrument I was desirous of showing to you. Since it was made, no opportunity has occurred for trying it; it may, therefore, be considered as but a theoretical instrument at present, and no surety can be given for its usefulness till it has been put to the test of experience. All that can be said of it

at present is, that, if it fulfil the promise its appearance holds out, it will be a most valuable addition to our stock for craniotomy operations.—*Dublin Medical Press*, June 20th, 1849.

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49. *Case of Uterus Bicornis.* By Dr. Generali.—The following case long excited great interest at Modena, being believed to be an undoubted one of superfœtation, an opinion indeed, which the subsequent post-mortem examination does not entirely set aside. Gaetena Boratti had borne six children, all at their full time (the hand having to be introduced for the removal of the placenta on each occasion), and was delivered of her seventh, a full-timed vigorous infant, on the 15th February, 1817, the placenta on this occasion being spontaneously discharged. The pains ceased, but the abdomen still remained large, and the movements of another fœtus were perceived. The tumour was confined to one side of the abdomen; and before the birth of the first child, a furrow along the median line seemed to separate the tumefaction into two parts. On the 14th March, a second well-formed child was born. The first child lived 45, the second 52 days. In 1822, she had another child at full time. In 1847, she died of apoplexy, and the uterus, normal in respect to its os and cervix, was found to be bicornuated at its fundus, a Fallopian tube being inserted into each of its cavities. The preparation is preserved in the museum at Modena.—*Brit. and For. Med.-Chirurg. Rev.*, from *Bulletin delle Scienze Mediche*, vol. xiii. p. 89.

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50. *Extra-uterine Fœtation—Gastrotomy.*—The particulars of this remarkable case, were related by M. Tueffard to the French Academy of Medicine.

The patient, a little thin woman, æt. 40, had been pregnant five times previously to the present illness; of these pregnancies, four ended in premature labour at seven months; the fifth arrived at full term. The extra-uterine was the sixth pregnancy. The fœtal movements were very perceptible up to the sixth month, when, after exertion, the patient felt the child suddenly start up towards the left hypochondrium, and then fall back again in the iliac region of the same side. She had, at the same time, violent abdominal pain and considerable hemorrhage. From this time the fœtus ceased to move, and the body diminished in size. Her symptoms afterwards were frequent and copious hemorrhages of periodical occurrence; in the intervals, excessive abdominal pain. When seen by the author, these symptoms had continued for six months. He discovered a tumour above the right groin, in which it was easy to perceive the form of the fœtus. The os uteri was healthy and closed, the cervix of its natural size, and the whole organ was movable. The patient being very anxious for an operation, after the inhalation of ether, the author made an incision over the tumour, in a direction parallel to the linea alba. After dividing the skin, muscles, and peritoneum, he came upon a whitish membrane, forming a cyst, and containing a matter very similar to adipocire; below this was another cyst, which contained the limbs and trunk of a fœtus, the head and upper extremities having escaped into the general cavity of the peritoneum, to which they had contracted firm adhesions. Further examination showed that the fundus of the uterus was destroyed, the cyst containing adipocire being closely adherent to, and forming one cavity with the uterus; the cysts were removed, and the abdominal incision closed by interrupted suture. As the vagina communicated directly with the peritoneal cavity, it was not necessary to insert a tent into the lower part of the incision, the discharges being enabled to drain off *per vias naturales*. The subject of this extraordinary case is said to have perfectly recovered.—*Ranking's Abstract*, vol. ix.

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51. *Retroversion of Uterus during Pregnancy.*—M. Van Heugel relates a case in which spontaneous reposition of the uterus took place, after emptying the rectum and colon of an immense quantity of impacted fæces.

A young woman, three months advanced in pregnancy, experienced great difficulty in making water, with pain in the abdomen. On examination, the os uteri was found under the pubes, and the fundus projected upon the sacrum, and depressed into its hollow. The urine was drawn off, and a large enema was exhibited by means of a tube, which was passed up to the sigmoid flexure;

an enormous quantity of scybalæ were thus removed, and, upon a subsequent examination, it was found that the fundus had resumed its natural situation.—*Ranking's Abstract*, vol. ix., from *Revue Méd.-Chirurg.*, Sept., 1848.

52. *Apparent Intra-Uterine Amputation.*—Dr. Ludwig Melicher, in the *Oesterreichische Medicinische Wochenschrift*, for April, 1848, relates the following interesting case: Joseph G——., 12 years of age, a pupil in the Imperial Grammar School, born of healthy parents, was the fourth child, and one of seven brothers and sisters, all born healthy, and well made. His mother states that she suffered no accident of any kind during her pregnancy with this child. He had always been healthy, with the exception of an attack of typhus three years ago. He is well formed for his age, his limbs of average proportions, except the left upper extremity, which presents the following unusual appearance—viz., a congenital entire deficiency of the lower two-thirds of the left forearm and hand. It appears at first sight as if amputation had been performed, but that such is not the case is evident from the presence of five little rounded elevations on the end of the stump, representing the fingers; one of them the size of a small pea, and furnished with a rudimentary nail, was separated from the others by a deep line, and corresponded to the thumb; the rudimentary fingers are about the size of hemp-seeds; they are soft, and contain neither cartilage nor bone. When the stump is bent, they become very distinct. On the internal and on the external borders of the stump, close to those elevations, are two funnel-shaped depressions. The stump itself has the appearance of a nine-pin flattened, its base at the elbow-joint measuring two inches; its apex is one inch and a half in width; its length is two inches and three-quarters. It is soft and spongy to the touch, as if padded with fat, and, on closely examining it, two bones may be distinctly felt; one corresponding to the radius, the other to the ulna. The elbow-joint is normal. The internal and external condyle, and also the olecranon, can be distinguished. Flexion and extension of the stump of the forearm are perfect, but pro and supination cannot be freely performed.

Through the unnatural mobility of the shoulder-joint, circumduction of the flexed or extended stump is rapidly performed, and by these means he is enabled to assist himself, and perform therewith the most varied actions;—*e. g.* he can by its employment withdraw the bolt of a door, and open it; he inserts the flexed stump into the handle of a basket, and readily moves it. The stump possesses in this manner considerable strength, so that he can drag along heavy weights. In cutting paper he holds down the paper with the bent stump, while he cuts it with the knife held in the hand of the other arm. He holds the paper in a similar way while writing; he can tie a knot, put on his cravat, and dress himself without any other assistance. He can even mend a pen without difficulty; holding the feather end in the bend of the elbow, and cutting the quill with the hand. He further aids the stump by the use of the shoulder-joint and knee. Thus he in many ways compensates for this unfortunate deficiency.

Dr. Melicher very justly regards the preceding deformity as an arrest of development, and as confirmatory of the theory of the centrifugal growth of parts. He refers to the reports of similar deformities by various authors, accompanied with defects of other limbs or organs: and he gives, with engravings of the preceding case, a drawing of a case which he saw in Vienna, where the forearm was replaced by three fingers. The child died at the age of three months, of hydrocephalus acutus. On examination of the arm, it was found that the biceps was divided at the elbow into three strips, which moved the fingers anteriorly; posteriorly they were moved by prolongations of the triceps.

A reference to the recorded observations of authors leads Dr. Melicher to divide cases of intra-uterine amputation into (1) the real, and (2) the apparent.

1. The cases of *real* intra-uterine amputation may again be divided into perfect and imperfect. Perfect intra-uterine amputation has been traced either to entanglement of the limbs with the umbilical cord, or to inflammation and sphacelus of the limb or limbs. Imperfect amputation may arise from a similar entanglement of the cord, cutting into, but not dividing the member; and under these circumstances inflammation may be set up, producing deformity, or end-

ing in spontaneous amputation, as in those rare instances where the amputated limbs or parts of limbs have been expelled detached from the trunk.

2. *Apparent* intra-uterine amputation belongs to that class of malformations which consist in an arrest of the growth of a portion of the organism, while the remainder proceeds in its normal development. Such is the nature of the preceding and a few other analogous cases which have been put on record.

Dr. Melicher has brought together most of the names of the authors who have recorded these cases. We add the following, which we find recorded in the *Medical Times* of Nov. 19th, 1842, by Mr. W. B. Kesteven, under the title "Effect of Maternal Imagination on the Fœtus." It has escaped the notice of Dr. Melicher most probably from the objectionable heading under which it was recorded; as it appears to us objectionable, from its assuming, as an explanation of the cases, a theory which is regarded by physiologists generally as destitute of foundation. Dr. Melicher's title, "Apparent Intra-Uterine Amputation," at once points out the characteristic features of the deformity, and avoids any inference of theoretical causes.

"An infant presented on the left upper extremity, a mere stump of about two inches in length, beyond the elbow-joint, terminated by a puckering of the integuments on which were situated five minute bodies resembling the tips of very small fingers; the child was otherwise perfectly formed. The history of the case is as follows:—

"Eight months before the birth of the child, the mother, walking with her sister (from whom I have collected the particulars), met with a beggar who, in order to excite compassion, exhibited an amputated stump on his left arm. The woman immediately expressed a sense of disgust and horror, and observed that, if she had been then pregnant, she would expect that her child would be born similarly maimed. The sequel has proved that she was then pregnant, though she did not apprehend it, and that her fears of the result were too well grounded.

"Her sister was present at her labour; and on receiving the infant, and discovering its deformity, experienced a thrill of disgust and sorrow, from which she did not recover until a few days after, when I was called to attend her for abortion, she not having previously suspected that she was pregnant.

"A few days ago I was called to attend, in her second labour, an intelligent, respectable young woman, the wife of a plumber residing in Hornsey Road, opposite to the first-mentioned woman. The child, which is otherwise perfect, presents a deformity precisely resembling that above described, with the exception of two imitations of finger ends instead of five, as in the former instance. I have collected the history of this case from the sister-in-law, the husband, and herself. About eight months since she was subjected to exactly the same circumstances as those I have related in the other case; she also did not suppose herself to be then pregnant, but expressed the same extreme sense of aversion, and her fear that, 'if she had been *in the family way*,' the infant would be similarly maimed.

"In both these instances the same dread of the result had been expressed during the period of gestation; and I have reason to think, though of course I cannot prove it to my satisfaction, that the same individual vagrant was the cause of alarm to each."

The subject of this case is, we understand, alive, and is a most intelligent and active lad, making as much use of his stump as the boy mentioned by Dr. Melicher.

The more extended researches of Dr. Melicher, with more correct views of medical reasoning, while they lead to a collection of facts, supply at the same time the grounds of a more rational explanation, than is furnished by popular ignorance. It is only thus, by the accumulation and comparison of carefully recorded observations, that pathological morphology will be enabled to explain the hitherto complicated and seemingly mysterious occurrence of monstrosities. This branch of medical science will by such researches be removed from the realms of imagination, and take its place under the rule of sober facts and severe reasoning. It is here worthy of notice how one false assumption or hasty generalization leads to other erroneous conclusions. It has been by many writers on teratology laid down as an ascertained truth, that such malforma-

tions as are noticed in the preceding extracts can only occur in the early weeks of pregnancy, and that they may be the effects of emotions in the maternal mind. The explanation which further experience affords, that these deformities are to be attributed to pressure by the cord, disproves the first conclusion; for the cord may become, and is necessarily more likely to become, twisted round the limbs at a later period when the limbs are formed, than at an early period when they are but rudimentary; and to the second conclusion, facts lend but a doubtful support.—*Lond. Med. Gaz.*, July 27th, 1849.

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53. *On Hemorrhage from the Umbilicus after the Separation of the Funis.*—Edward Ray, Esq., read before the *South London Medical Society*, an interesting paper on this subject, embracing the details of a number of cases. His object, he says, in detailing these cases, and collecting others of umbilical hemorrhage occurring some days after the separation of the funis, is to demonstrate the peculiar disposition this kind of hemorrhage has to attack the male sex only, and its liability to occur in a succession of male children from the same parents. He is also particularly desirous to receive from the profession any facts relative to this somewhat rare affection, or suggestions that may tend to the more successful prevention or treatment of it.

A lady aged 32 years, was attended by Mr. R., in her sixth confinement, on the 1st of May, 1845. After her marriage (1834) she was thrown from a chaise and bled largely from injuries then received: her first child, a female, was born June 19th, 1835; the mother attempted to nurse, but from extreme debility was obliged to give it up entirely to a wet nurse after a few days: the child was strong and healthy, and is now living.

Second child, a male, born December 1st, 1836, was feeble from its birth, jaundiced, refused both breast and food: hemorrhage occurred from the navel some days after the separation of the cord, and the child died on the 19th day after birth.

Third child, a male, was born on December 19th, 1837, and appeared to be strong and healthy at birth; was nursed by mother in the day and fed in the night; became jaundiced; some days after the separation of the cord, the child was found to be faint after coughing in the night; umbilical hemorrhage had occurred, and he died on the 11th day after birth.

Fourth child, a female, born May 26th, 1839, was nursed by mother two hours during the day, and fed at night: now living and healthy.

Fifth child, a female, born May 2d, 1842, was nursed by mother 16 months during the day, and fed at night: has been healthy, but has now emphysematous lungs subsequent to hooping-cough.

"Sixth child, a male, born May 1st, 1845, after a very short and natural labour, well formed, and apparently strong and healthy: the meconium passed naturally: on the third day the child was jaundiced, and Mr. Young, of Kennington, who had previously attended this lady, most kindly called upon and informed me of the mode of death of the previous male children, and expressed his conviction that this child would die also from umbilical hemorrhage, and supplied me with Ruspini's styptic to attempt its arrest. On the 4th day, the evacuations being scanty and almost void of colour, I prescribed hydr. c. creta, gr. iss, c. conf. aromat. gr. iij, and followed it by small doses of rhubarb in aromatic form occasionally, with the effect of producing three or four evacuations in the 24 hours, of slightly improved colour. On the sixth day, the cord separated from the umbilicus; there was nothing to remark beyond the jaundiced and somewhat inactive state of the child. From this time, I undertook the dressing of the navel, and applied night and morning zinc ointment dusted freely over with powdered matico leaves. Suspecting the mother was not a good nurse, a wet nurse was with some difficulty procured. A small granular point alone remained unhealed *within* the umbilical pit on the ninth day. On the morning of the tenth day a slight stain of blood was seen, on the dressing being removed from the umbilicus; the under surfaces of the matico leaves were now applied over the umbilicus, and a compress over them. At 3 P.M. I was sent for, the child being faint, and found, on removing the bandage from the abdomen, that the compress was sodden with blood: firm conical compresses of lint were made

so as to fit *into* the umbilical depression, and firmly retained after being moistened with Ruspini's styptic, but did not appear much to control the hemorrhage; one wetted with oil of turpentine was then similarly applied, and to all appearance checked it, but in less than two hours it recurred, and it was evident to Mr. Peppercorn (who was present) and myself, that pressure, with or without styptics, could not be depended upon for controlling it: on watching the blood, as it was seen to ooze in a fine, undulatory stream from left to right, and in a direction upwards, showing that it proceeded clearly from the left umbilical artery, it was of a very light vermilion colour; coagula were scarcely traceable on the linen, &c., which had more the appearance of being stained by a thin-coloured fluid, than the usual stiffened stain of blood. We decided upon encircling the umbilicus with a double ligature introduced by a curved needle, but were shortly after compelled to surround it with a single ligature, as the blood began to ooze after a few minutes from the needle's punctures; this effectually controlled it, but the child was already blanched and losing temperature; it was now kept warm and quiet, and frequently supplied with small quantities of breast-milk with a spoon, as it had not the power to suckle. On the 11th day it was still weaker; no return of hemorrhage; could not suckle; nutriment could be got down only in very small quantities; two small petechial spots on the left arm; skin yellow and cold; child quiet, and breathing almost imperceptible; motions of pasty consistence and almost white. Ordered beef-tea and milk to be administered if possible, beef-tea enemata, and small doses of sesquicarbonate of ammonia sheathed in mucilage every hour. The child continued gradually to sink, and died on the 12th of May, the 12th day after its birth, 6th day after the separation of the funis, and in about 46 hours after the commencement of the bleeding.

The examination was conducted by Mr. Hilton, 26 hours after death. The body was full eighteen inches in length, weight nearly 7 lbs., skin jaundiced, conjunctiva slightly so, two purpuric spots on the left arm, abdomen tympanitic, testes descended.

Abdomen.—Muscles pale; peritoneum perfectly free from all evidence of any previous inflammatory action; the peritoneal surface of the umbilicus prominent, or bulging towards the spine, and indistinctly fluctuating; its colour darkened. The stomach externally had a marbled appearance: it contained about three ounces of beef-tea and milk; its internal surface was covered by a ropy brownish substance (blood acted on by gastric juice), which gave the peculiar stained or marbled appearance noted externally. Intestines, although natural, were here and there slightly reddened in the more depending portions; mesenteric glands numerous. Duodenum, jejunum, and ilium, contained but a small quantity of paste-like matter; the contents of large intestine trivial, and but slightly tinged with bile. Spleen of natural colour, large, soft, and fleshy; branches of splenic vein impervious. Pancreas normal. Liver of normal size, of olive brown colour; the acute margin ecchymosed. Gall-bladder not distended, but contained some mucus tinged with bile; the cystic, hepatic, and common ducts natural and pervious. Hepatic artery and branches normal. Splenic, mesenteric veins, and the portal vein, with its right and left branches, all pervious. The sympathetic branches beautifully seen in Glisson's capsule. The umbilical vein and venous duct open; the venous duct narrowed and somewhat funnel-shaped, being widest at its caval end. Inferior cava and hepatic veins open. Kidneys, ureters, and bladder normal. On inflating from the common iliac arteries (the femoral arteries being closed by temporary pressure), both umbilical arteries were found to be open as far as the umbilicus; but on the ligatures which had been applied during life to stop the bleeding, being removed, air did not escape from either artery at the umbilicus, nor did any air escape from the umbilical vein when inflated, yet a very fine probe passed readily through the vessels, and appeared at the umbilicus; the *left* umbilical artery was the largest, and contained a fine string of fibrine and a little fluid blood; the right umbilical artery contained neither blood nor fibrine, and the umbilical vein was empty.

Chest.—On opening the chest, the lungs did not collapse; both lungs were jaundiced, and presented numerous ecchymosed spots, especially on their pos-

terior portions; a small quantity of yellow serum in each pleural cavity. Thymus and thyroid glands healthy. Phrenic nerves normal. Pericardium contained about a drachm of yellow serous fluid. Heart pale; right ventricle contained a little fluid blood; pulmonary artery and its valves normal. Ductus arteriosus cylindrical in form, size of a large quill; a probe passed without any obstruction from the pulmonary artery to the aorta; parietes of the duct thickened, more dense in structure than the aorta or the pulmonary artery, its inner surface corrugated longitudinally. The right and left pulmonary arteries natural, their openings larger than that of the ductus arteriosus. The auricles empty; the foramen oval tubular and valvular. The left ventricle contained but very little fluid blood; there was no fibrine in any of the heart's cavities. The aortic valves, three in number, one large and two small; the openings of the coronary arteries were covered by the smaller valves. The aorta normal in form and structure; its lining membrane yellow, and the blood in it fluid. Thoracic duct pervious, and contained a very small quantity of pellucid fluid. Splanchnic nerves normal. Thoracic ganglia and sympathetic nerves larger on the right side than on the left. Pneumogastric nerves normal. Vena azygos major normal, containing blood, which was readily pressed into the superior cava.

The umbilical arteries, and the cavity in which they terminate, presented a corrugated or transversely ribbed appearance; this corresponds precisely with what may be usually seen after death in arteries which for some time before death have not contained or transmitted their usual quantity, or scarcely any blood: and as this same condition extends to the dilatation which receives the umbilical arteries, it suggests the probability of there having existed some malformation at that part: a sort of common receptacle, in the form of a dilated artery, into which the umbilical arteries emptied themselves, from which the umbilical vein proceeded, and from which, also, the hemorrhage took place through the umbilicus. It is evident that the usual healthy process of occlusion had not taken place in these umbilical blood-vessels, and the same kind of defect was manifested in the ductus venosus and in the ductus arteriosus.

Whilst attending upon the case related, I heard from a non-professional source of a lady losing her *four male* children from bleeding at the navel, after the separation of the cord: these children, I was informed, came out in purple spots before death, and were attended by the late Drs. Key and Babington. This lady gave birth to two healthy female children, who married, and are supposed to be still living.

As to the mode in which the fœtal vessels become obliterated, I am at present disposed to believe that it is by the gradual contraction of their coats, and not by the formation of a clot within them. In the few children I have had the opportunity of examining under the age of one month or six weeks, I have not detected any trace of a fibrinous plug, but have generally been able to trace a canal in the vessels. I find, upon inquiry, that it is not uncommon for a *little oozing* of blood to occur after the immediate separation of the funis, which either spontaneously or readily subsides with compression; and it is not a little singular that I have seen this *slight oozing* in two *male* infants of an ill-fed poor woman, who nearly lost a former *male* child, from hemorrhage from the funis, occurring some hours after birth. Hemorrhage from the umbilicus I believe to be prevented by the contraction and by the retraction of the vessels (after the separation of the funis), and by the subsequent sealing by granulation and cicatrization. The formation of the umbilical depression is probably aided by this retraction, and some degree of internal traction on the remains of the umbilical vein and urachus being produced by the respiratory movements and distension of the bladder.

The jaundice observed in the cases related appears to me to be deserving of notice. Did it depend upon the partial atrophy of the liver immediately after birth, in consequence of the changes that occur in the circulation on the respiratory functions being established, the liver being then not the sole decarbonizer of the blood, as during fœtal existence; or did it depend upon inefficient nutrition? It is supposed by some physiologists that the presence of chyme distending the small intestine is essential to the uninterrupted flow of bile into

it; and if the intestine is empty, the bile accumulates in the gall-bladder and ducts, and may afterwards be re-absorbed into the blood. The presence of bile in the intestine has been proved by Schwann to be essential to nutrition. I have certainly seen jaundice most obstinate in infants inefficiently nursed. A patient of mine, who is never able to nurse more than a few months, has had six children, all jaundiced, and they have rarely lost their yellow skin under two months.

The treatment of umbilical hemorrhage must be directed to the prevention or cure of it.

Preventive Treatment.—Recognizing the theory relative to the influence of the sexes in the reproduction of the species, that the male supplies the seed, and the female the soil or nutriment, I believe that the treatment primarily must be directed to maintain the general health of the mother during the period of utero-gestation; thus to insure, as much as is in our power, the ability to bestow the nutriment so essential to the perfect development and organization of the fœtus; and secondly that we must be prepared with efficient means to supply the child after its birth with the nutriment most natural for it, and from a healthy source, that the assimilating functions may be stimulated and performed. After the separation of the funis I would suggest the application of collodium before applying the usual compress of soft linen, and urge the daily superintendence of the accoucheur: I allude, of course, only to cases where the disposition to this form of hemorrhage is known or suspected.

Curative Treatment.—Should the hemorrhage, notwithstanding our precautions, occur, the administration of one or other of the remedies serviceable in purpura—as steel, gallic acid, &c., might perhaps be of some avail: but mechanical means must be adopted for *immediately* checking it; and in the employment of those means there must be no *delay*—no loss of time by repeating an unsuccessful attempt, as every drop of blood is of vital importance to so young an infant. Should such a case occur to me again, I should first attempt to control the bleeding by pinching up the umbilicus between the finger and thumb in the same manner as I should pinch up the integuments to control the bleeding of a leech bite, maintaining that pressure, if successful, and coating the umbilicus, first filled with cotton wool, over with collodium, or employ plaster of Paris, as suggested by Dr. Churchill, if at hand. But, should it not be thus readily controlled, I should produce an eschar by means of a probe, director, or skewer heated to whiteness, coating afterwards with collodium. If unsuccessful, I should then proceed to tie the bleeding vessel, and adopt the mode suggested to me by Mr. Hilton, first introducing a fine probe into the bleeding vessel, to act as a guide for the incision, as well as to diminish, perhaps, the loss of blood. I do not recommend the immediate application of the ligature in these cases, from the impression that they are so allied to the cases reported as illustrative of the hemorrhagic diathesis; and, consequently, deem it possible that hemorrhage of a dangerous, if not a fatal character, might arise from the wound necessary for its application.—*Lond. Med. Gaz.*, March, 1849.

CHOLERA.

54. *On the Pathological Anatomy of Cholera.*—Dr. W. T. Gairdner, in a communication read before the Medico-Chirurgical Society of Edinburgh, and published in the *Monthly Journal of the Medical Sciences* (July, 1849), gives a very interesting account of the pathological anatomy of cholera, founded on the examination of eighty-nine fatal cases, during the late epidemic. In the course of his duties as pathologist to the Royal Infirmary, Dr. G. has had unusual opportunities of contrasting and comparing the appearances in cholera with those presented to his notice in connection with other diseases; and the constant use of this *comparative* method of observation has led him to consider many statements as erroneous, which are generally, and in some cases all but universally, received in relation to this disease. The greatest care has been taken by him, he says, to verify or correct the results obtained by previous observers, more

especially where any theory of the disease appeared to be involved; microscopical analysis and chemical tests have been applied wherever they promised to aid in the investigation; and in regard to such doubtful points as appeared likely to acquire precision by numerical analysis, the results have been preserved in the tabular form.

The bodies opened were mostly from the cholera hospital, being taken at random from those who died under the care of Dr. W. Robertson; a few, however, were from the infirmary. The proportion of females to males was two to one. The average age of the patients was thirty-three, by far the greater number being between twenty and forty. Four of the females were in different stages of pregnancy; but as the greater number of the bodies of females known to be pregnant were given to Mr. Goodsir, by his special request, this number does not give an accurate idea of the large proportion of pregnant cases. Several of the females had been nursing, as was shown by the distended mammæ, which readily yielded milk on pressure. The great majority of the bodies examined were evidently those of persons previously healthy and vigorous. They presented the external appearances, so well known in cholera, of lividity and collapse; the last being caused by the shrinking of the cellular tissue from the absorption of its watery parts; there was, however, no diminution of the fat, which was usually in very considerable quantity on the abdomen and elsewhere. The muscles were of good colour, and usually in strong tonic contraction from the rigor mortis. The more important facts resulting from the examination of the internal organs are embodied in the following conclusions:—

I. *Previous Diseases of those attacked.*—Cholera appears, during the late epidemic, to have attacked chiefly persons in health, or in the retrograde stages of chronic affections; and to have spared almost entirely those affected with acute or actively progressive disease. Appearances of acute disease were chiefly observed when death took place after more or less distinct reaction, and were evidently the *sequelæ* of the choleric affection. The chronic lesions were exactly similar in kind to those most commonly found in hospitals and dissecting rooms, but bore a decidedly lower proportion than is usual to the whole number of cases examined. Thus the lungs had the traces of old disease, in one-sixth of the cases; among which two only (cases of miliary tubercle) indicated progressive disease. The liver presented a chronic lesion in one case; the kidneys in four, of which only two (incipient Bright's disease) were progressive. The uterus and ovaries were frequently more or less abnormal, but the only progressive lesion was ulceration of the cervix, usually quite superficial. The intestines were uniformly exempt from chronic disease. It thus appears that the opinion which has been so extensively prevalent since 1832, that cholera attacks, chiefly or exclusively, individuals of unsound constitution, or bearing the traces of previous organic disease, is not borne out by the facts of morbid anatomy; and in particular, that there is no evidence whatever that previous disease of the intestinal canal pre-disposes to cholera.

II. The *Blood* is much less affected in its physical characters than is usually supposed to be the case in cholera. Its coagulation within the vessels takes place much as in other diseases. In the majority of instances, firm clots are found within the heart, more or less completely decolorized; and the serum or non-coagulated portion contains the greater part of the blood-corpuscles. The colour of the blood presents nothing unusual, the epithets "dark" and "venous" being in no degree more applicable to cholera blood after death than to that of every ordinary form of fatal disease. The remarkable viscidity of the serum (or portion of the blood not involved in the clot) so often noticed, was chiefly observed in cases fatal during the collapse or early reaction; and was certainly owing to the removal of the fluid matter by the intestines. The effect of this, in modifying the chemical constitution of the blood, has been fully shown in Dr. Robertson's researches (*Monthly Journal*, May, p. 764). The microscopic appearances of the blood presented nothing unusual.

III. Much importance has been attached to *Congestion* in relation to the pathology of cholera. But it is an error to conceive of congestion as an essential or universal condition in this disease; for, although the lungs and right side of the heart are frequently loaded with blood to a considerable extent, the liver,

spleen, and kidneys are, in most cases, paler than is usual in other affections. The intestines present every shade of colour from the palest to the deepest. The uterus and Fallopian tubes are generally loaded with blood. The venous system of the brain, and indeed the great veins generally, are also in most instances full. But such appearances are very common in other forms of fatal disease.

IV. A tendency to *Ecchymosis* in various situations was certainly characteristic of cholera to an extent not common in other fatal diseases. These ecchymoses seldom occurred externally, except in one situation, viz.: beneath the conjunctivæ of the eyes, which were very commonly more or less bloodshot. Among the internal organs it was more frequent on the intestinal mucous membrane, especially of the colon, than in any other situation; but very frequent also in the form of petechiæ on the posterior surface of the heart, and occasionally in other places, as the cellular tissue surrounding the cervical vessels, and in that around the dura mater of the spinal cord. Perhaps there were other situations in which ecchymoses might have been found on examination; but in the above it was so frequent, that in only six out of twenty-six cases was it not found in one or more of them.

V. The *Glandular Secretions* in cholera are probably more or less diminished in quantity (although there are no very precise observations on this point); and they appear also, from the observations of Dr. D. Maclagan* on the milk, and of Dr. J. W. Begbie and other observers on the urine,† to undergo great alterations as to quality. But with the exception of the urinary secretion, which in the collapse appears to be nearly, if not altogether suspended, there is no evidence that any of the more important and constant glandular secretions are suppressed in any stage of this disease. The milk could be readily expressed in streams from the ducts, even after death, in nursing women. All the other glands preserved their natural appearance and structure, and the lymphatic and mesenteric glands contained a secretion which presented the normal microscopic elements.

Next to the suppression of urine, the suppression or retention of the bile has been assumed (on account of its apparent absence in the dejections) to be one of the most characteristic features of Asiatic cholera. The assertion that the bile is suppressed, however, is obviously incorrect; and it is only wonderful that this idea has not met with more positive discouragement by pathological writers. In the late epidemic, in every instance, except two, the gall-bladder contained more or less of bile, which was mostly of good colour and consistence; and, in the greater number of instances, in quantity sufficient to produce considerable distension. One of the exceptional cases was the one formerly referred to, of diseased liver, in which the gall-bladder contained only a thin light-coloured fluid; in the other, abundance of bile was present in the duodenum and stomach. The gall-ducts were most frequently empty, but occasionally contained bile; a probe passed in all cases easily from the duodenum to the gall-bladder, being usually somewhat tightly grasped at the neck of the latter, as is invariably the case, whatever be the cause of death.‡ The duodenum contained, in most cases of collapse, no appearance of bile; but there were,

* See Dr. Robertson's account of the practice in the Cholera Hospital, in the *Monthly Journal*, December, 1848, p. 394.

† Dr. J. W. Begbie has made a very extended series of observations on the urine voided in the earlier periods of reaction, from which it appears that the urea is generally much diminished, and in some instances entirely absent; and that albumen is almost invariably present in greater or less amount, together with epithelium, for a variable period after the commencement of reaction. The presence of albumen was noticed, at a very early period, in the Edinburgh epidemic, and has since been extensively observed in the Parisian hospitals. Dr. Begbie also informs me that various other modifications of the urinary secretion have been observed by him; in particular, a reaction with nitric acid indicating the presence of bile.

‡ This constriction at the neck of the gall-bladder is probably due to an elastic tissue. It has been frequently mistaken for *spasm* of the gall-ducts, a condition which, I believe *as far as post-mortem examinations are concerned*, to be purely imaginary.

nevertheless, several cases in which the characteristic green colour was present in greater or less amount in the contents of the duodenum and stomach, though not in those of the intestines generally.

It appears, therefore, clear, that the non-bilious character of the evacuations cannot be due to non-secretion. It must, therefore, be ascribed to retention of the secreted bile in the gall-bladder. But it may well be doubted whether this retention can be rightly regarded as any part of the pathological process in cholera. The quantity of bile which passes into the duodenum, under ordinary circumstances, in the absence of the natural stimulus of food, is probably very small; and the quantity which appears in the fæces in the normal state, or even under an ordinary attack of diarrhœa, would be quite insufficient to tinge visibly the enormous quantity of fluid thrown off by the intestines in cholera. Further, the examination of the cholera dejections chemically shows that biliary colouring matter can frequently be discovered in them by the nitric acid test, when it is not appreciable otherwise;* and it is fully proved by the *post-mortem* appearances, that bile is occasionally found in appreciable quantity in the duodenum during the collapse state (though to a more considerable extent during the reaction). From these circumstances, it seems probable that the secretion of the liver is discharged into the intestines in cholera, to quite as great an extent as in most diseases in which digestion is totally interrupted, or as in a healthy individual when fasting; and that its ceasing during the collapse to colour sensibly the dejections, is the consequence of its extreme diffusion through the mass of fluids in the intestines.

Repeated microscopic examinations of the liver revealed nothing unusual. The kidneys, however, appeared in many cases to have undergone morbid changes, the cortical substance being pale and turgid, and the tubuli uriniferi gorged with imperfectly developed epithelium, which was mostly loaded to an unusual extent with oleo-albuminous granules. A similar state of the kidneys occurs after scarlatina, and not unfrequently after typhus fever, and some other acute diseases.†

The secretions of the serous membranes appeared to be diminished in quantity, and everywhere more viscid than natural; an effect probably of the altered constitution of the blood.

VI. The *condition of the Intestinal Canal and its Secretions* demands special notice. The most frequent of all the abnormal conditions of the mucous membrane was the prominence of the intestinal glands, both aggregated and solitary, but especially the latter. This condition, the *psorenterie* of some French writers, was found in about two-thirds of the cases. The great frequency of patches of ecchymosis in the intestines, especially in the cæcum, has been already alluded to; in these cases, the intestinal contents were usually more or less tinged with blood, and presented blood-corpuscles among their other elements under the microscope. The ecchymosed patches were distinctly circumscribed, in tint varying from claret colour to the deepest purple, approaching black, but in parts not unfrequently greenish or ash-coloured; their surface presented a similar appearance, in all but colour, to the rest of the mucous membrane, and

* Dr. Parkes seems to doubt whether the matter indicated by this reaction is bile; but neither does he admit it to be uric acid, the only substance which has been alleged to have caused confusion. The principal reason stated for his skepticism is, that "there is a remarkable retention of this product (bile) in cholera, as in dysentery." It will be at once obvious that this is the very preconception against which I am arguing. See the *London Journal of Medicine*, Feb., 1849, p. 143.

† I am indebted to my friend, Mr. Alexander Borthwick, now in Dumfries, who studied along with me very carefully the condition of the different organs in cholera as compared with the miscellaneous cases which came under our notice, for tabular statements which show quite satisfactorily the much greater comparative prevalence of an excessive quantity of oleo-albuminous exudation in the kidneys of cholera patients, than either in the liver or the heart, which were in this respect below the average. None of these cases, however, with the exception of those alluded to in a former part of this communication, presented the granulations of Bright, or any other unequivocal marks of a chronic disorganization.

was not perceptibly elevated. In three instances, however, a different appearance was observed in the colon, the mucous membrane presenting a few flattened elevations, each over the extent of about a sixpenny piece, of a grayish or leaden colour. These elevated patches were evidently due to a sub-mucous exudation (probably identical with the diphtheritic exudations described as occurring in cholera by Virchow), and yielded on section a creamy fluid; in this fluid, microscopic examinations showed no well-marked pus-corpuscles or complete cells, but a number of nuclei, on which acetic acid produced no effect. In one protracted case, in which the great intestine was much ecchymosed, there were traces of dysenteric lymph on several parts of the mucous membrane. In two other instances, there was distinctly exudation of yellowish lymph, with heightened vascularity on the external serous surface of several folds of small intestine.

On the other hand, it was by no means uncommon, especially in early fatal cases, to find the intestines throughout natural in colour and appearance, or even paler than natural; and in many of these cases there was no prominence of the solitary glands.

The intestinal contents resembled closely at first sight the well-known cholera stools. In their most characteristic appearance they were yellowish-white, but frequently acquired, from blood on the one hand, or bile on the other, various shades of orange and greenish colour. On microscopic examination, the intestinal contents invariably showed immense quantities of perfect epithelium, sometimes in coherent masses, peeled from the mucous membrane, and preserving the form of the villi and follicles to which it had been attached. The existence of epithelium in the fluids found in the intestines in cholera has been noticed by Boehm (see *Medical Times*, June 24, 1848), and other observers, and has been supposed to indicate a complete desquamation of the intestinal epithelium as one of the special pathological conditions of cholera. In reality, however, the appearance proves precisely the reverse; for the presence of epithelium in such large quantities in the fluids found in the intestines after death, is the result of purely mechanical maceration upon a mucous membrane to which, during life, the epithelium remained attached. That this is the case is proved by these facts: 1st. That artificial maceration produces a similar result on a healthy mucous membrane; 2d. That the epithelium found in the fluids of each division of the intestines is always that of the particular part where it is found; 3d. That the true cholera stools, *passed during life*, contained so little perfect epithelium, that it cannot be considered as anything more than an accidental ingredient.*

The examination of the cholera stools leads to much more important and less confusing results than that of the intestinal fluids after death. These discharges separate by filtration, or on standing, into a colourless, or slightly coloured fluid, of an alkaline reaction and a flaky sediment. The former is usually of a specific gravity from 1005 to 1010, and contains, therefore, a very small proportion of solid matters; these have been shown by Dr. Parkes to consist chiefly of salts. Repeated examinations of this fluid have shown, during the late epidemic (as Andral showed in the former), that albumen, as tested by heat and nitric acid, is not necessarily present in it. Indeed, the presence of albumen usually coincided with that of a small quantity of blood, which, as before mentioned, is frequently present. The fluid, however, contains *constantly* a small quantity of an organic substance which is precipitated by alcohol, by corrosive sublimate, and (when acidulated) by ferrocyanate of potash; and which presents, in other respects, the chemical reactions of mucus.†

* A similar conclusion, in regard to the desquamation of epithelium, has been maintained by Dr. Parkes, in an elaborate article on the *Intestinal Discharges in Cholera*, in the *London Journal of Medicine* for February last. Although there are many opinions in Dr. Parkes' paper from which I differ, it affords me much gratification to observe, that the principal facts included in the description of the cholera masses, by himself and his colleagues, correspond so nearly with what I have myself observed.

† M. Mialhe calls this substance *albuminose*, and considers it as "the ultimate product of the digestion of albuminous substances." (See *L'Union Médicale*, 5th April, 1849.)

The flakes which form the sediment of the cholera-stools, have likewise the ordinary chemical reactions and physical properties of mucus. They are, however, opaque and turbid, and when submitted to the microscope, show a hyaline finely-striated basis, involving numerous granules, nuclei, and cells. The granules and minuter molecules require no particular description. The nuclei are from a 1-250th to 1-180th of a line in diameter, circular or slightly oval, and not affected by acetic acid. The cells are comparatively few in number, mostly globular, seldom exceeding 1-150th of a line in diameter. Some of them are but little affected by acetic acid, and single-nucleated; others present all the appearances of perfect pus cells, being two, three, or even four-nucleated, and having the cell-wall rendered very transparent by acetic acid. The most common appearances, however, were the nuclei without cells above mentioned.

Any one who is familiar with the pathological phenomena displayed by mucous membranes in a state of irritation, will readily recognize the similarity of the above microscopical appearances to those of ordinary catarrhal discharges from any of the mucous surfaces of the body; the chief peculiarities of the choleric fluid being the enormous exaggeration of the watery and saline matters evacuated, and likewise the smaller tendency to the discharge of albumen, and the development of pus-corpuscles, which are so readily formed and thrown off from a mucous membrane in a state of ordinary irritation.

The effects upon the blood of the removal of the watery and saline constituents are well shown in Dr. Robertson's analysis; and it is probable that a considerable amount of the albumen of the blood also passes away by the intestines, in the form of mucus, which is nearly allied to it in composition, and which, as has been shown, forms the organic basis of the choleric evacuations.

VII. The *Nervous System* presented no lesion worthy of remark. The pia mater of the brain and spinal cord were often considerably injected, especially that of the cord, which, from the position of the body after death, almost always presents this appearance. The spine was, however, only opened in four cases; and in one of these there were found small calcareous plates upon the arachnoid of the cord—the most frequent, probably, of all its chronic lesions. The sympathetic ganglia, and the pneumogastric nerves were repeatedly examined; but nothing unusual, except in a few cases slight ecchymosis, was discovered.

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55. *On the Pathological Anatomy of Cholera.*—Dr. Raikem has communicated to the Belgian Academy of Medicine the following anatomo-pathological researches on cholera. His observations were made on persons who had died before reaction had commenced; this it is important to bear in mind, as the pathological changes of that period are different from those which occur in the stage of reaction. In the former, there are none of the characters of inflammation; in the latter, they are often present.

I. *External State of the Body.*—In general, the animal heat continues longer than usual; but in no case has it appeared to rise immediately after death to a higher degree than during the agony. I have never seen spontaneous movements in the dead bodies of cholera patients, either in the limbs or lips; but a hospital pupil and several patients have told me that they witnessed such phenomena in two cases. The face was pale, sharp, and exhibited muscular contractions, so that the angles of the mouth were elevated, and the mouth was partially opened; this was observed more on one side than on the other. At the moment of death, all the limbs became stiff. This stiffness lasted some days, even when putrefaction had commenced in the anterior walls of the abdomen, and the splanchnic cavities had been opened more than forty-eight hours. It was accompanied by hardness and very distinct muscular markings, by extension of the foot, and by a very powerful contraction of the fingers on the

His pathology of cholera is founded on the alleged presence of albuminose in the blood, which assertion, however, he does not appear to have attempted to establish by experiment. I prefer, therefore, the more familiar term of mucus, which is perfectly applicable to this substance, and was used by Andral, to one which is associated with a very doubtful hypothesis. The nearly allied chemical relations of mucus and the protein compounds are well known.

thumb, which returned immediately after they had been, with great difficulty, extended. In most cases, the nails and fingers were in a state of cyanosis. This livid tint had its seat in the subjacent vascular tissue; and—which is a remarkable circumstance—pressure on these parts produced paleness, succeeded by a return of the colour when it was removed, just as is observed in cholera patients during life. This experiment serves to show that the black blood with which the cutaneous capillaries are engorged, is still in a liquid state, so as to be capable of being easily displaced. The disappearance of the cyanosis, from many parts, immediately after death, seems to prove the same thing.

II. *Head.*—The arteries on the surface of the encephalon usually contained a little black thick blood, easily seen through their semi-transparent coats. The venous sinuses, especially the lateral, as well as the veins beneath the arachnoid, often contained some black, viscous, semi-coagulated blood. I once observed bubbles of air in one of the venous ramifications, in a patient who had died on the fifth or sixth day of the disease. There was, as yet, no evidence of decomposition, and the animal heat remained, although more than thirty hours had elapsed since death. Slight compression on the walls of the right ventricle of the heart, caused the escape from some divisions of the jugular veins, which had been opened, of bubbles of air, and frothy blood, in large quantity. Bubbles of air have been sometimes observed to escape, with the blood, from the vein of a cholera patient, opened during life; and several physicians, worthy of credit, among whom is Professor Spring, have often found an aëriform fluid in the cerebral veins of individuals who had died of cholera. The cerebral substance presented no constant alteration; I always found, however, the choroid plexus, the velum interpositum, and the veins of Galen, gorged with blood. The upper part of the spinal cord appeared, in most cases, more firm than usual.

III. *Thorax.*—I have always found the walls of the right ventricle of the heart in an extraordinary state of flaccidity and relaxation, while the left ventricle was more or less contracted. The right auricle was very full of dark blood, frequently clotted; the right ventricle contained much less. The left cavities contained only a very little blackish thick blood, more liquid than in the right side. It may hence be presumed, that the functions of the heart ceased with the diastole of the right, and the systole of the left ventricle.* The venæ cavæ, the azygos, intercostal and mesenteric veins, etc., usually contained more or less dark thick blood; but the latter veins were frequently flabby and weakened, containing less blood than their calibre would hold, and presenting no appreciable change of their walls. I have pretty often found in the arteries a little dark blood, especially in the aorta and carotids. The interior of these has several times appeared of a rosy tint, while the internal coat was softened and capable of being easily raised, bringing to view a number of small whitish striæ, formed by atheromatous matter, in the subjacent cellular tissue. The lungs were generally more or less collapsed, leaving an interval of two or three inches between their anterior surface and the costal pleura. Their anterior surface was uneven; their substance felt like marrow, and crepitated but little. They were light, and almost exsanguine in the greatest part of their extent, except in their posterior and inferior part, which was the seat of slight sanguineous engorgement, and presented a more or less deep red colour. These viscera were often also emphysematous, retaining the impression of the finger. They were of a much lower specific gravity than water, and had no mucus nor froth in the bronchial tubes, and only contained an appreciable quantity of blackish blood in the vessels of the posterior and inferior portions. I have never met with tubercles in the lungs of cholera patients; however, in one case there was tuberculous matter in the bronchial glands, and in the submucous cellular tissue of the ileum. Nor have these viscera ever presented traces of inflammation. However, in a young woman who died on the fifth day, and who presented on the fourth some symptoms of pleurisy, followed by hæmoptysis, I

* In a report read to the Académie de Médecine of Paris, in December, 1831, it is stated, that the heart, in the bodies of cholera patients, never presents the same persistence of contraction as the muscles of the limbs.

met with a sort of splenization of the inferior lobe of the right lung. This lesion was to be referred, I think, to hemorrhagic congestion, with sanguineous effusion into the pulmonary vesicles, the minute bronchia, and the cellular tissue of the organ.

IV. *Abdomen.*—The liver was slightly gorged with dark thick blood, but presented no remarkable alteration. The gall-bladder was usually distended with bile of variable colour and consistence. I have several times found biliary calculi. Another time, its walls were opaque, whitish, thick, studded with highly-developed hyperæmiated vascular ramifications, and contained a large quantity of a clear limpid fluid, holding mucosity in suspension. Analogous observations have been made by a celebrated French physician, in cholera patients. The portal vein contained little or no dark blood; its walls were collapsed, and presented no apparent alteration. The spleen, in no case, appeared to me softened and gorged with blood. It was not uncommon to find the mucous membrane of the stomach presenting, here and there, hyperæmiated and well-developed villosities, a more or less distinct dotting, or an arborescent injection with softening in various stages. In one case, that of a tanner who suddenly fell ill on the 27th of March, and died in twenty hours, I observed a circumscribed portion of the mucous membrane of the large end, to be of a grayish colour, very much softened, without any trace of organization, detached from the surrounding tissues, and exhaling a repulsive odour;—an alteration which I considered as a slough. The stomach, but especially the intestines, almost always contained a whitish creamy matter, less thick in the small than in the large intestines, and containing small grumous particles of the same colour. In three cases, these were replaced by whitish flocks, formed of very distinct *debris* or *detritus* of disorganized fibres; this happened in cases where a more or less extensive portion of the mucous and muscular coats of the intestinal tube had been destroyed or mortified, in consequence of a non-inflammatory pultaceous softening. The liquid was occasionally sanguinolent, or tinged yellow with bile, which seldom appeared in any great quantity in the duodenum and other small intestines. I have often met with lumbrici, but only once with a tricocephalus in the cæcum, a small entozoon which may be found in most subjects, of whatever disease they die. The internal surface of the intestinal canal was coated with a layer of thick glutinous mucus, or with a white creamy matter. Most frequently, it presented a more or less intense diffused redness, and a more or less marked arborescent injection. In these cases, I easily succeeded in producing paleness, by passing my finger several times over the hyperæmiated portions. This confirms the experiments of M. Magendie on the permeability of these vessels in cholera patients, and shows the absence of inflammation. The mucous membrane of the intestines was sometimes pale, colourless, and thin, and exhibited vascular scattered ramifications through the sub-mucous cellular tissue. It was frequently covered, especially in the lower part of the ilium, with round whitish corpuscles, about the size of a hemp or millet seed, or even smaller. These corpuscles, more or less numerous, had a certain degree of hardness, and were raised above the level of the mucous membrane, rendering it rough to the touch. I have never met with them in the stomach; but it was not rare to find them scattered over the whole surface of the intestines, even on the spaces occupied by the glands of Peyer. The base of these corpuscles was of a pearly white, and surrounded by a sort of areola of hyperæmiated arborescent vessels. I rarely found them flattened, and with a distinct aperture in the centre; some of them appeared deprived of epithelium, and superficially ulcerated at their summit. When they were separated from the intestines, and punctured with a lancet, I was able to press from them a milky liquid, analogous to that found in the intestines. As these corpuscles are found indiscriminately in all parts of the intestines, it seems that they cannot be attributed to a morbid hypertrophy either of the glands of Brünner, which are peculiar to the duodenum, or of the glands of Peyer, which are found only in a certain part of the small intestines, but to an histological element common to different points of the intestinal canal. From the characters which they present, I suspect that their seat is in the closed capsules, or solitary follicles without an aperture, which are found scattered throughout the intestines. The villi of the

small intestines were commonly more developed than usual, and of a whitish colour. I have twice found the ilium without traces of inflammation, covered with ulcerations of more or less depth, with ragged edges, resting on the muscular coat, and in some places on the peritoneum, with softening of the surrounding mucous membrane. This had, in a more or less considerable extent, been in some way destroyed or liquefied, so that there only remained the peritoneal coat, covered by some remains of the superjacent tissues. The intestinal walls, then, viewed through daylight, resembled thin gauze, being semi-transparent, and very easily torn. In another case, that of an armourer, aged 26 years, subject to epilepsy, who had been ill only a few hours, the cæcum and a part of the colon were found attacked with a similar morbid erosion of the mucous, cellular, and muscular coats, without any appearance of hyperæmia or inflammation, even in the peritoneal membrane. I have sometimes met, here and there, with circumscribed ecchymoses and a sort of sanguineous infiltration, in the fatty vesicles situated between the layers of the epiploon and mesentery. The mesenteric glands were commonly a little swollen, firm, of a rose colour; and, when cut into, allowed some serous liquid to exude. I have never met with intestinal invaginations in cholera patients; the colon has, however, occasionally presented permanent contractions. Each time that I have made a careful examination of the superior cervical and semi-lunar ganglia, by placing thin slices of them on plates of glass, I have recognized with the naked eye, and still better with a powerful lens or with a microscope, a more or less marked arborescent vascular hyperæmia, often accompanied by small, sometimes by considerable ecchymoses, in their substance. The bladder was commonly empty, contracted, and lined with a whitish creamy matter; in one or two cases I was able to obtain some urine.

Remarks.—Death, in cholera, has been attributed to paralysis of the brain—*apoplexy;* to paralysis of the lungs—*asphyxia;* to paralysis of the heart—*syncope.* I am not disposed to admit the existence of paralysis of the solar plexus. Paralysis of the principal foci of life may occur either suddenly or gradually. Whatever may be the cause of death in the concatenation and succession of phenomena which precede it, I think with some others, that there is a moment when it commences either in the heart, in the lungs, or in the brain. But which of these organs is it that first loses life, or functional activity, in cholera patients? It is not probable that the action of the brain ceases before that of the lungs and heart. In fact, the patient preserves his intellectual, moral, and affective faculties entire, up to the last moment; and the cerebral functions are least deranged in the course of the disease. It is generally admitted that cholera patients die of asphyhia. But when I reflect on the anatomical characters of asphyxia—voluminous, distended, inflated lung, heavier than usual, of a dark violet colour in its whole extent, gorged with dark fluid blood, and having the bronchia filled with a frothy liquid, etc., while in cholera patients it is collapsed, light, more or less exsanguine, with no froth in the bronchia, etc.,—I am authorized in saying that anatomo-pathological facts do not support the idea of asphyxia in cholera. Such an idea is also opposed by the non-persistence of the contractility of the fibres of the heart, as well as by the phenomena presented by the circulation in the course of the disease, which tend to show that the central organ of the circulation is primitively affected with inertia and want of power. I would then adhere to the opinion of those who consider that death begins from the heart. When syncope terminates various diseases, said the immortal Bichat, we constantly observe the lungs almost entirely empty; they are not gorged with blood. If no organic disease have pre-existed, they are collapsed, occupying only a part of the thoracic cavity; and retain their proper colour.—*Lond. Journ. of Med.*, Aug. 1849, from *Gazette Médicale de Paris*, July 7th, 1849.

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56. *Medicines at Long Intervals in Cholera—Value of Calomel and Carbonic Acid Gas at Short Intervals.* By P. Niddrie, M. D.—It is melancholy that cholera continues to be treated by means which much experience has shown to be perfectly useless, and that even high authorities continue to recommend means that have not the least influence on this disease. I have notes of ninety-

three cases that occurred, in the year 1832, in the choleral hospital ship, *Dover*, thirty-three of which terminated fatally; and from these, and many subsequent cases, I have fully ascertained, that brandy in any quantity, up to a bottle in twelve hours, does not at all stimulate; that ammonia is equally powerless, and that opium, chalk, heat, friction, and bleeding, are perfectly useless. So little effect had these and other remedies, that I feel assured they did not in the least retard the fatal termination of any of these thirty-three fatal cases, and in one case the fatal termination was certainly accelerated by the abstraction of a few ounces of blood. Calomel and soda water, given every three or four hours, were equally useless. Melancholy experience of the uselessness of such means has led some to believe, that treatment is of no avail in cholera, and that most cases would do quite as well if left entirely to themselves. This is doubtless the case in severe cases of collapse, if medicines be administered every three or four hours; but what results from the treatment so zealously urged by Dr. Ayre? In a former number of *The Lancet*, I gave details of one of the numerous cases that have convinced me that cholera, even in the stage of collapse, is quite as manageable as any other severe disease. The mode I have followed differs little from what I find Dr. Ayre so zealously recommends, and consists in placing on the tongue two grains of calomel, mixed with a little sugar, to be washed down by an effervescing draught. If rejected, the dose is repeated immediately; if not followed by vomiting, the dose is repeated in from five to ten minutes, till reaction commences, when the period between each dose is gradually extended to an hour or longer. Calomel and carbonic acid gas seem to be as powerless as other means, unless thrown constantly into the stomach; therefore, this mode of giving them must be followed, and the course of the disease being so very rapid, the patient must not be left until collapse yields to the constant attacks of these remedies. I have had ample experience of the total uselessness, in cholera, of large doses of medicines given at long intervals, and am fully convinced of the great value of calomel and carbonic acid gas, constantly and perseveringly administered at short intervals. Under this treatment purging ceases, or becomes less frequent, although vomiting may occasionally recur for some time; the expression of the countenance gradually changes; the temperature of the breath and tongue rises; the pulse gets stronger, and the skin warmer; cramp becomes slight, and extreme collapse is followed by little or no febrile excitement; and the gums do not even swell if care be taken gradually to discontinue the calomel, by extending the period between each dose as collapse disappears. I would earnestly urge this treatment on those who have found the usual remedies fail, and am assured, that if this mode of administering calomel be strictly followed, the result will be found to be as happily successful as the usual large doses of medicines at long intervals are found to be despondingly powerless.—*Lancet*, Sept. 1, 1849.

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57. *Treatment of Cholera at La Charité in Berlin.* By J. Lamprey, M.D.—The remedies mostly used in the treatment of this disease were the cold effusion, and cold fomentations to the abdomen and head; frictions of warm flannels, or sometimes jars of hot water, were applied to the feet, to keep up the temperature of the extremities. The medicinal agents, with few exceptions, were not selected from any particular class, or for any other purpose than to meet symptoms.

"The patients, when admitted, were almost too far gone for any remedy to be of use. . . . They were always received in a state of syncope or asphyxia, and required some powerful stimulant to restore the suspended animation; for this purpose the cold effusion was found the most powerful and expeditious agent.

"The manner of applying it in the hospital of Berlin was as follows: As soon as the patient was stripped of his clothes he was placed in the wooden bath before mentioned; one assistant nurse supported him in an upright sitting position, whilst another assistant dashed a bucket of cold water on his head and back; he then took another bucket of cold water, and poured it equally quick on his face, thorax, and abdomen. The patient was then partially wiped dry, and lifted into bed, when sometimes he was wiped drier, and hot jars applied to his feet. As soon as this was done, a large sheet saturated in cold

water, and folded up, was placed on his abdomen as a cold fomentation; another smaller piece of wet linen was placed on his head. This process was repeated three times in the twenty-four hours.

"I had an opportunity of witnessing this process and its effects on several occasions. On examining a patient in a short time afterwards, I was surprised to see the immediate restoration of animation take place, though the patient had been pulseless and cold before he was placed in the bath, yet in a few moments the pulse could be felt, and an increase of warmth perceived, which gradually improved. In some cases the patient began to perspire profusely, and recover immediately after the first or second application.

"The medicinal agents used were derived from no particular class, one excepted, which was used as a specific only, by the Persians originally, and lately by the Russian physicians. I allude to the radix sambul. It is a root of a very peculiar volatile odour, strongly resembling the perfume of violets, on which in all probability its virtues depend, as great caution is required in its preparation, in infusion and decoction.

"The issue of the case in which this had been tried should certainly be no criterion of its value. An emetic of a scruple of ipecacuanha and one grain of potassio-tartrate of antimony had been administered in one case, probably on the same principle that it is sometimes given in fevers—namely, to cut short the attack. Unfortunately, where this had been tried, though the case appeared favourable enough for it, it did not succeed: the patient died in a few days after, from some cerebral complication.

"Dr. Ward, of the Bethanien, informed me that he treated two cases with nux vomica, giving ten drops of the tincture three times a day; and that one case recovered, the other sunk. He also told me that a friend of his gave charcoal with good success.

"Chloroform had been tried on two occasions: the first case derived a temporary benefit from it, as it completely subdued the spasms, and afforded tranquillity for about three hours; but its effects were not permanent, as these symptoms were renewed as soon as its effects were over. From the partial success in one case it was tried in another; but unfortunately *immediate death was the consequence.*"

The success of the "cold effusion" plan even Mr. Lamprey allows not to have been very encouraging—"the cures being only in the ratio of sixteen per cent." So much for the *cold water* system!—*Lancet*, July 7, 1849.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

58. *Cases of Poisoning by the Acetate of Lead.*—Dr. William Norris, of Stourbridge, relates, in the *Provincial Med. and Surg. Journal*, June 27, 1849, a distressing occurrence which took place in the towns of Stourbridge and Kidderminster and the neighbouring villages, from the mistake of a miller's servant, who mixed about thirty pounds of acetate of lead, in the place of alum, with sixty or eighty sacks of flour. Nearly a thousand persons suffered from the poisonous effects of the lead.

The sufferings of the patients were unusually protracted and severe, in consequence of eating the poisoned bread some weeks after the violent symptoms first commenced, the strongest and most robust men (from long suffering, and from the frequent occurrence of violent paroxysms,) have been reduced to the most emaciated and feeble state.

The persons who ate the bread, after a few weeks complained of a peculiar taste; some compared it to soda, others to rusty needles or copper. The tongue was covered with a darkish cream-coloured mucus, and was soft and flabby; the gums were swollen, with a blue line on the margin, and in many cases the blue tinge extended nearly over the gums, and occasionally on the inner side of the lower lip, and in a faint degree over the mucous membrane of the mouth and towards the fauces; the tonsils were in some cases enlarged, producing soreness of the throat, and in other cases there was salivation, a clear fluid

flowing from the mouth many days after convalescence. These symptoms were accompanied by loss of appetite, nausea, vomiting, flatulency, and obstinate constipation, with a sense of constriction in the throat and epigastrium, and a violent spasmodic pain and twisting around the umbilicus, which was retracted; the pain was sometimes increased by pressure, occasionally extending over the abdomen, and when the paroxysms were violent, the muscles of the abdomen were contracted spasmodically, and a most frequent symptom was pain in the loins, about the situation of the lumbar fascia, and in the deltoid muscles. The patients were chilly, with great languor and lassitude; the cutaneous secretion was diminished; the intellect was clear, but there was generally depression of the nervous, sanguineous, and muscular systems; the pulse was low and feeble; the features were sallow, and shrunk; and the muscles felt soft and flabby; the fluid vomited was often mixed with bile, and occasionally coffee-ground secretion; the fæces were dark, and highly offensive, with scybala; the secretion from the kidneys was scanty, and of a dark red colour, almost like porter.

Treatment.—The bowels were in general so obstinately costive, that large and frequently repeated doses of the strongest cathartics were often necessary. Sometimes I began with a large dose of calomel, followed by sulphate of magnesia or castor oil; when these did not produce sufficient effect, croton oil, and voluminous enemata, were used with manifest advantage. Croton oil frictions were useful when vomiting was excessive. To allay the sickness, hydrocyanic acid, or a few doses of calomel and opium. By the omission of the daily purgative, the symptoms would in many cases return. The patients were directed to take light nutritious food and milk during convalescence. Some cases were so slight (although the gums were blue) that the patients would not take medicine.

In violent cases, when other remedies had failed, the warm bath relaxed the spasms very speedily. Opiate frictions, and bran poultices, were useful in milder cases. The soothing effects of the warm bath, in some instances, were quite astonishing, and in violent cases it should never be omitted, for it not only relieves the abdominal pain, but allays the spasms and irritation in other muscles of the body. When there was tenderness in the abdomen on pressure, leeches were beneficial; and in one case venesection was absolutely necessary.

A young woman, Phœbe Welch, aged 22, who had suffered severely from peritonitis three years before, had been ill from the effects of lead more than a week, when the pain in the abdomen much increased, with great tenderness on pressure, feverish excitement, and rapid pulse. Venesection and leeches were used, and the sufferings were mitigated; the symptoms returned with increased violence, and bleeding and other antiphlogistic remedies were repeated. The blood was buffed and cupped. As the inflammatory symptoms subsided, she became almost maniacally hysterical on several successive nights, and yet she recovered many weeks sooner than any of the family, so that I am inclined to believe, in strong subjects venesection may be useful.

In very severe cases there were great exhaustion, and a slight leaden hue in the countenance; then stimulants became absolutely necessary.

In one of the last numbers of the *Provincial Journal*, iodide of potass is recommended in small doses, as a remedy for the poisonous effects of lead and mercury, by forming a soluble salt, which is readily eliminated. The experiments were performed by M. Natalis Guillott, read before the Academie des Sciences, Paris. Dr. N. has tried this remedy in several cases; and certainly, gums that had been blue for months, in a few days changed to a more natural appearance, and no symptoms of severity have since occurred; in fact, the patients appear now quite convalescent.

Dr. Norris remarks that "the poison of lead appears to exert its deleterious effects mostly on the muscular system. One of the most frequent symptoms was an acute or chronic pain in the muscles of the loins, and perhaps also in the fascia lumborum; and in many cases the larger muscles of the body were affected with pain. Probably the abdominal pain is occasioned by the spasmodic constriction of the muscular fibres of the larger bowels, thus diminishing their

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contractility of tissue; and this may, in part, be the cause of the constipation, though in some cases the pain may be confined to the abdominal muscles.

In a youth, 18 years of age, with blue gums, the pains were confined to the muscles of the arms and legs, and he suffered most severely from violent contractions in all the extremities, without pain of abdomen or loins.

In this neighbourhood we have numerous glass houses, and many hundreds of men are constantly employed in the fumes of lead, and we know them by a sallow, thin, unhealthy aspect, with soft and flabby muscles. The relapses in some constitutions were very frequent and very severe, sometimes after several weeks had elapsed, and patients thought themselves well.

Mr. Segar, aged 47, an irritable man, of nervous temperament, had suffered from several severe paroxysms, the pains began gradually to return a month after the onset of the disease, and increased like the pains of labour, every ten minutes or a quarter of an hour; there was great difficulty in relieving his bowels (which, in many instances, were locked up for a week or nine days); when the bowels were cleared, large and repeated doses of laudanum only mitigated his sufferings, till at length, at the end of thirty-six hours, the pains were returning very frequently, and became more and more violent, in the abdomen, back, and various parts of the body, somewhat similar to the last pains of childbirth, with the pulse excited, and the face flushed; he was almost maniacal, biting and tearing anything before him. An immersion in the hot bath acted like a charm; in a few minutes the pain subsided in the bath. He went into a profuse perspiration, and slept all night. At the end of two months the case terminated with severe diarrhœa.

Sarah Welch, aged 20, a strong robust woman, had more than a dozen severe paroxysms for six weeks, and was confined to her bed, and at the end of seven weeks had an attack more severe than any that preceded. The pains intermitted, being sometimes moderate, then succeeded by agonizing torture. The warm bath gave great relief in this case, but there was a slight return from irritating scybala; and so long as scybala remain, there is no safety. In these cases the lower bowels were often freely opened, still much irritating matter remained in the upper bowels, and perfect ease from the paroxysm cannot be insured till all irritating secretions are removed. All ages suffered, even children at the breast; also rabbits and birds. Some persons were affected very slightly, having only a slight griping pain in the bowels, with muscular pains, dyspeptic symptoms, and a half-jaundiced appearance. Many of these chronic cases went on two or three months without any violent paroxysm.

I attended a painter, who had suffered severely from paroxysms nearly a week, when some scybala came away of very curious appearance, of oval shape, the size of marbles; they were fatty substances, rather hardened, like suet, with a green tinge. The patient told me that for weeks he had been eating fat mutton, and had been very much employed mixing green paint. The symptoms now subsided; he had no return.

The extensive blueness in the gums was a very characteristic feature in this disease. I saw 120 cases, and I witnessed this peculiar change in most of them. There were very few exceptions. Those patients with the gums most tinged did not always suffer the most acute symptoms, but they continued more or less indisposed till the gums assumed their healthy aspect; but I do not consider any patients safe, if they have suffered from severe paroxysms, while this unnatural appearance remains, for many have followed their avocations for weeks, and have then been doomed to fresh, and perhaps more severe attacks. I ate the poisoned bread myself, but the symptoms went off very lightly. In convalescence, I always enjoined strict attention to the bowels, very warm clothing, and a milk and light diet.

No case of paralysis of the arms has yet occurred. Some violent cases were followed by mild typhoid symptoms, others by slight jaundice, anasarca, and diarrhœa. One diseased old woman, subject to pyrosis, I think must have died from exhausting diarrhœa, if she had not been well supplied with laudanum, brandy, and other stimulants.

Some are easily affected with small doses of lead, whilst others I have seen since the last few months have resisted its effects most wonderfully. I knew a man take half an ounce of liquor plumbi in mistake, without any ill effects.

59. *Case of Poisoning by the Berries of the Daphne Mezereon.* By Dr. Schwebes, of Königsberg.—Cases of poisoning by the berries of mezereon are by no means frequent, notwithstanding their resemblance to the common red currant, and the frequency with which the plant is cultivated as an ornamental shrub in gardens. Experiments on animals have proved that these berries contain a very active poison. Mitscherlich killed a dog with twenty grains of the powder, and Linnæus saw a wolf killed by six of the berries. For these reasons, Dr. Schwebes deems the following case of sufficient interest for publication:—

Two children, one a boy of four years of age, the other a girl two years old, rambled unnoticed into a neighbour's garden. On returning home, the boy complained of a sense of burning in the mouth, followed by nausea. He, of his own accord, attributed his illness to his having eaten some red berries which he had found on a shrub in the garden. Medical advice was immediately procured. Before Dr. Schwebes arrived, milk had been given to him, and he had vomited freely, the vomited matters contained a quantity of the berries of the Daphne mezereon, some masticated and some entire. The child continued to complain of dryness and heat in the mouth, and of burning pain in the stomach. A reddish mucus was voided from the throat and mouth, but no abrasion or blister could be discovered on the mucous membrane. The inclination to vomit continued, but nothing was ejected. The pulse was regular.

The girl, who, according to her brother's statement, had eaten the berries as well as himself, was playing about the room, without manifesting any signs of indisposition.

An emetic was given to each of the children: the boy vomited the remainder of the milk he had drunk, mixed with more berries. The girl vomited after a longer interval, and ejected eight entire berries. On visiting the children in an hour afterwards, Dr. Schwebes found both in a state of complete narcotism, with coma: there were convulsive movements of the eyes and upper extremities occurring at short intervals; the pupils were contracted, and scarcely sensible to the stimulus of light.

It thus appears that the poisonous action of mezereon depends upon irritation of the brain and upper part of the spinal cord. The convulsions must be attributed to irritation of the intestinal canal through the sympathetic nerve, as in helminthiasis.

By warm baths, cold affusion to the head, sinapisms to the extremities, and other appropriate treatment, the coma and convulsions disappeared, and on the following day both children had perfectly recovered.

By way of experiment, Dr. Schwebes gave six berries of the same shrub to a rabbit, which masticated and swallowed them: three hours afterwards the animal ate food that was put before it, and appeared none the worse for the poison which it had swallowed.—*London Med. Gaz.*, Aug. 1849, from *Casper's Wochenscrift*, August 26, 1848.

MISCELLANEOUS.

60. *A Statistical Inquiry, as to whether the Proportionate Frequency, the Nature, and the principal Characters of Diseases have undergone in the course of time the great Modifications they are said to have done.* By M. Valleix.—The object the author has in view in the present communication, is to determine whether, by the study of certain diseases in a diagnostic point of view, during an epoch not far removed from our own, and one that is remarkable for its revolutions in medical doctrines, we may arrive at certain conclusions, capable of being generalized and applied to anterior periods. It is continually asked, whether such or such a disease existed heretofore?—whether it prevailed as frequently formerly as now?—and whether changes in hygiene, the progress of civilization, or other more or less powerful influences, have not operated changes in our affections? In reply, we are obliged to confine ourselves to vague generalities.

The period M. Valleix has chosen for examination, is the twenty years intervening between 1819–39, during which facts of such an importance have oc-

curred, as to have almost totally changed the face of science; so that a person, conversant with internal pathology only in works written before 1819, would scarcely comprehend the physicians of the present age. In 1818, appeared the last edition of Pinel's "*Nosographie Philosophique*," which had constituted the code of medicine in France for twenty years before. The author had, however, now reached the end of his reign, although the attacks of Broussais had not yet completed his dethronement. The latter published his "*Examen*" in 1816, and *his* domination may be said to have continued from 1820 to 1830, to be submitted then, in its turn, to attacks no less vigorous and successful, leaving behind, however, certain general views of undoubted utility, and which have put us on the track of important discoveries. In a third period, from the fall of Broussaisism, we have the prevalence of "rigorous medicine," exact observation, and assiduous experiment replacing doctrines founded on hypothesis and ill-observed facts. Typhoid fever now took the place of that gastro-enteritis, which itself had so violently displaced the ataxic, adynamic, bilious, putrid, &c., fevers of former times. Just as the system of Pinel was about yielding to that of Broussais, in 1819, appeared Laennec's work on Auscultation, imparting a precision to the diagnosis of certain diseases, of material service in solving the question before us.

M. Valleix, having had his attention directed to the large number of deaths from *pneumonia*, occurring at the Salpêtrière (the hospital for aged persons), examined the mortuary list for a long period back, and discovered most remarkable differences in the proportional frequency of this and other diseases. Laennec's work, having been published only in 1819, it required some time to educate physicians in auscultation. Thus, we find, from 1819 to 1821, 60 deaths per annum are set down to *pulmonary catarrh*, a number which, now we know how rarely this of itself produces death, seems enormous. From 1821 to 1829, the number averaged but 14 or 15; and from 1829 to 1839, but 19 per annum. Were cases of *phthisis* mistaken for pulmonary catarrh during the first period? No; for to this disease is also assigned a higher figure (39 and 40) than in later years, when it varied from 20 to 24. Nor do cases of mistaken *pleurisy* explain the difference; for the numbers of these, during the three periods, were respectively 30, 10, and 42. This latter discrepancy of numbers is to be explained by the fact, that, when auscultation was little known, many cases were, from the presence of pain in the side, cough, &c., set down as pleurisies. In the middle period, much hesitation prevailed in pronouncing upon such cases, while the more perfected knowledge furnished the high proportion of the third, and which, probably, in future will be maintained. The true explanation of the diminished number of deaths from pulmonary catarrh, is the vast increase of those proved by auscultation to be due to *pneumonia*, in the aged, as we shall presently see.

The consideration of the *cerebral affections* present analogous facts. From 1819 to 1821, *apoplexy* was alone familiarly known. Ramollissement, the paralysis of the insane, and encephalitis were nearly unknown. From 1819 to 1821, there were 158 deaths per annum attributed to *apoplexy*, which, in 1821–29 sank to 59, and continued at much the same figure (61) during 1829–39. A more exact knowledge of cerebral affections, derived from the investigations of Rostan, Lallemand, Calmeil, Foville, and others, explains this. Thus, in 1819–21, *ramollissement* is only assigned twice as the cause of death, and during the next period, information on the subject not yet being very accurate, it was generally confounded with encephalitis; but, during the next period, the number averages 22. Add the 22 to the 61 apoplexies of this period, and abstract it from the apoplexies of the first, and an approximation of numbers commences. As to *encephalitis*, during the prevalence of Broussaisism, most cerebral affections were so termed. Thus, during 1819–21, two or three deaths per annum are noted; during 1821–29, 48; and during 1829–39, when ramollisement asserted its claims, only 16. Add the 48 encephalites to the 5 ramollissements, and the 59 apoplexies of the Broussaisian period, and we have 112; while, if we abstract from the 161 of these diseases of the first period the 53 of the encephalitis and ramollissement of the second, we have 108—a not very different figure from 112. Next, if we add to the apoplexies and ramollissements of the third period, 61, the encephalites, we have the number 99, which forms some approach to

that of 123, obtained by abstracting the 38 ramollissements and encephalites from the 161 of the first period. The *general paralysis* of the insane will serve to fill up the lacunæ. Thus, while, in the two former periods, it only furnished 4 deaths, during the third it furnished 24.

We have now seen a disease, as it were, enveloping in itself and concealing the existence of three others, of a different nature, though occupying the same seat. We next have to observe several others, of apparently different nature, become sunk and lost in one which absorbs them all. During 1819–21, the word *fever* was still pronounced, though tremblingly, and we find 71 deaths attributed to adynamic, and 39 to 40 to ataxic fever. During 1821–29, the adynamic sank to 19 or 20, and the ataxic to 6 or 7; while, during 1829–34, the diminution is still more complete,—the adynamic sinking to 3 or 4, and, after 1834, disappearing altogether, and the ataxic being noted but once in a year. What has become of all these fevers? During 1819–21, little mention was made of *enteritis* (23 per annum) and *gastro-enteritis* (9); but, during 1821–29, they averaged 36 and 37 respectively. It is evident that many fevers became thus transformed; and the proof of it is, the great diminution of these inflammatory affections since the fall of Broussaisism; but the adynamic and ataxic fevers have not reappeared to replace them. Both the fevers and the inflammations have, in fact, disappeared; and, for the explanation of this, we must return to the consideration of *pneumonia*. During 1819–21, this disease figures at 72 per annum; during 1829–39, at 110; and during 1829–39, at 256. Take from this 256 the 72 of the first period, and we have a residue of 184, which has furnished the material for the ataxic, adynamic, putrid, and other fevers, gastritis, gastro-enteritis, and, as we have seen, fatal pulmonary catarrh. Strange is the fact, that Pinel, himself physician to the Salpêtrière, furnished from this very hospital a description of fevers, recorded at the time with enthusiasm; and that these fevers, now termed typhoid, are no longer found within its walls. Stranger still, that Broussais, who saw imaginary gastritis or gastro-enteritis, could not see a real pneumonia! It can now, however, be no longer doubted, that pneumonia is *the* acute disease of the aged, and is, in fact, almost the only one, after a certain age, that occurs.

The general conclusion to be drawn from all that precedes is, that we must not blindly rely upon the statements of authors, to the effect that different diseases have appeared or disappeared at certain epochs, or that they have undergone much change in severity or frequency. We should first assure ourselves that such authors have not been deceived by a simple change of name, and have not thus transformed one disease into another.—*Brit. and For. Med.-Chirurg. Rev.*, April, 1849, from *L'Union Médicale*, vol. ii. Nos. 101–4–7.

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61. *Important Discovery in Ventilation.*—We copy the following from the *Literary Gazette*. We have long been aware that Dr. Chowne has been making experiments in ventilation, and that he has pursued them with an unwearied perseverance. He deserves the success which has attended his efforts to improve this important branch of hygiene. "At a time when cholera, with an appalling voice, calls the most earnest attention to house-ventilation, and dreadful explosions and loss of life in mines demand no less anxious efforts to devise means for the prevention of these calamities, we have much satisfaction in anticipating that human residences may easily be supplied with a continual circulation of wholesome air, and the most dangerous subterraneous works be preserved against accidents from foul currents or fire-damps. Dr. Chowne has enrolled a patent for Improvements in Ventilating Rooms and Apartments, of the perfect efficacy of which, we believe, there cannot be a doubt, and on a principle at once most simple and unexpected. Without going into details at present, we may state that the improvements are based upon an action in the inverted syphon which had not previously attracted the notice of any experimenter—viz., that if fixed with legs of unequal length, the air rushes down into the shorter leg, and circulates up, and discharges itself from the longer leg. It is easy to see how readily this can be applied to any chamber, in order to purify its atmosphere. Let the orifice of the shorter leg be disposed where it can receive the current, and lead it into the chimney (in mines, into the shaft), so as to convert

that chimney or shaft into the longer leg, and you have at once the circulation complete. A similar air-syphon can be employed in ships, and the lowest holds, where disease is generated in the close berths of the crowded seamen, be rendered as fresh as the upper decks. The curiosity of this discovery is, that air in a syphon reverses the action of water, or other liquid, which enters and descends or moves down in the longer leg, and rises up in the shorter leg! This is now a demonstrable fact; but how is the principle to be accounted for? It puzzles our philosophy. That air in the bent tube is not to the surrounding atmosphere as water, or any heavier body, is evident; and it must be from this relation that the updraft in the longer leg is caused, and the constant circulation and withdrawal of polluted gases carried on. But be this as it may, one thing is certain—that a more useful and important discovery has never been made for the comfort and health of civilized man. We see no end to its application. There is not a sanitary measure suggested to which it may not form a most beneficial adjunct. There is not a hovel, a cellar, a crypt, or a black, close hole anywhere, that it may not cleanse and disinfect. We trust that no time will be lost in bringing it to the public test on a large scale, and we foresee no impediment to its being immediately and universally adopted for the public weal. We ought to remark that fires or heating apparatus are not at all necessary; and that, as the specification expresses it, 'this action is not prevented by making the shorter leg hot while the longer leg remains cold, and no artificial heat is necessary to the longer leg of the air-syphon to cause this action to take place.'"

[Extraordinary as this may appear, we have witnessed the experiments made in various ways, with tubes from less than an inch to nearly a foot in diameter, and we can vouch for the fact being perfectly demonstrated. Light gas does descend the shorter leg when heated, and ascend the longer leg where the column of air is much colder and heavier!—Ed. *L. G.*]

62. *A New Disinfecting Apparatus.*—A very simple and cheap apparatus has been contrived by Mr. Charles Watts, formerly editor of *The Chemist*, for the purpose of disinfecting apartments, or other localities, in which foul effluvia abound. It consists of a wide glass with a perforated mahogany top, in the centre of which is plunged a glass vessel, shaped like a wide percolator. This vessel is intended to hold the muriatic acid, which, by a slight management of the stopper, can be allowed to drop *guttatim*, to flow in a stream, or to be altogether cut off, at the option of the person using it. The lower glass may contain oxide of manganese, sulphite of soda, or other chemical compounds which undergo decomposition on contact with muriatic acid. The evolution of the gas may be greatly expedited, if required, by placing this lower glass on heated sand, or in a vessel of warm water.—*Lond. Med. Gaz.*, August, 1849.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Pseudo-membranous Laryngitis. By Dr. W. CHEW VAN BIBBER, of Baltimore.

Recoveries from pseudo-membranous laryngitis are so rare that each is worthy of being remembered.

The following case is interesting on account of the urgency of the symptoms, the unmistakeable character of the disease, and the promptitude of the relief.

Hugh Brady, aged 3 years and 2 months, was observed on the 11th of January to have catarrh with cough and hoarseness.

On the 13th, Dr. J. L. Webster was called; found him with high fever, difficult respiration, ringing, croupy cough, voice a whisper, throat inflamed, tonsils enlarged; no membranous exudation on tonsils or fauces.

On 14th. Cauterized the throat with water ℥i, nit. argent. grs. xiv. Prescribed calomel and emetics, with a blister on the sternum. This treatment was continued until I saw him in consultation, on the 23d, the 12th day of the disease.

Symptoms.—Respiration 32, forced; alæ nasi expanded and mouth open; loud blowing and hissing sound in inspiration and expiration, but louder in inspiration; head thrown back, buried deep in the pillow; laborious heaving of chest; countenance of fearful anxiety; eyes open and glassy; pupils contracted; profuse perspiration over head, chest, and upper extremities; legs and feet dry and hot; pulse full and fast, 140.

Sibilant and mucous rales on both sides; if any other sounds existed, they were masked by the loud blowing sounds in the larynx and trachea. Tongue and mouth parched and dry. No false membrane could be discovered on the throat by the red light of a candle.

Having acquired some dexterity with the probang, we attempted to pass Dr. Green's instrument into the larynx. Saw the epiglottis erect, but failed to get the sponge entirely through the cartilages. From the violent expulsive efforts produced we concluded (which is no doubt true) a small portion of it dropped into the trachea. In a few moments there were expelled by these efforts many fragments of false membrane, the longest of which was nearly two inches, ragged and detaching itself in water; was light coloured and tough; we attempted to pass it again, and a third time with the same result. At the last attempt there was no more false membrane expelled.

In half an hour an emetic of sulph. cupri. Continue calomel with mercurial plaster to the throat.

24*th*. No better. Pulse quicker and more contracted.

Used probang with the same results as before, three times in succession. The solution being, aq. ℥i; nit arg. (crys.) ʒi. An emetic of alum ʒi, repeated. Suspend calomel.

25*th*. Better.

26*th*. Greatly relieved. Laryngeal stridulous sound almost gone, loud

mucous and sonorous rale in both lungs, particularly the right. Profuse perspiration, and urine scanty. ℞. Mur. ammon. grs. iij; tinct. digitalis. ℥ss; ext. hyoscyamus, gr. ½. Every two hours in solution. Sponge the surface with a solution of salt and water, and frictions with warm flannel.

27*th*. Better in every respect, and from this time he recovered.

It has been said (and with what justice you can determine) that "Physicians have been tinkering at the constitution for two thousand years, and but two specifics are recognized, viz., mercury and sulphur." That the nitrate of silver may prove, when properly applied, a specific in pseudo-membranous laryngitis, I sincerely hope, and from the effects I have observed from it when applied to false membrane appearing on the tonsils and pharynx, I think it not improbable.

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Internal Mechanical Obstruction overcome by Mechanical Forces. By RICHARD H. TOWNSEND, M. D.

At nine o'clock, Saturday evening, December 16th, 1848, I was called in haste to visit Mr. J—— M———, who was then labouring under strangulated hernia. Upon examination, I found an inguinal hernia on the right side, about as large as an ordinary sized lemon, tense, and very painful to the touch, owing to the repeated trials which the patient had made for its reduction, previous to my being sent for. Taxis was then resorted to by myself, but without success. I then ordered a large tub to be brought into the room, into which I placed the patient with his feet projecting outside, and added warm water until it reached his umbilicus. I then placed a ligature upon the arm and bled him from a large orifice thirty ounces, which made a perceptible impression upon the pulse, but without syncope. Then closing the orifice, and while the patient was still in the bath, applied firm and continued pressure to the tumour, and in forty seconds it was reduced. The patient was then taken from the bath, placed in bed, and a truss applied, but owing to its ill fit, a second protrusion took place, and I was again sent for at one o'clock in the morning, to reduce it the second time, which was done with very little difficulty. Ordered a dose of castor oil, to be given at 8 o'clock in the morning and left. Sunday 12 o'clock A. M., the oil having been thrown up and sickness at stomach continuing, gave him half an ounce of the liq. ext. of senna, which was repeated during the evening, but without the desired effect. Monday morning 8 o'clock. Passed a restless night with frequent vomitings of a grayish coffee-ground appearance, a tympanitic state of the abdomen, and constant eructations. During the day gave him three several doses of cream of tartar and jalap, assisted by stimulating enemata, all of which proved equally ineffectual in removing the obstruction.

Tuesday. The vomiting still continues, the abdomen distended, pulse, 120, small and weak, and constant thirst. Gave one grain of calomel every hour, with fomentation and spiced plaster to the abdomen, without the least abatement of the symptoms. At 12 o'clock, midnight, met Drs. Tucker and Goddard in consultation, who coincided with me in the belief that there must be some internal obstruction, and that the patient would in all probability die. Croton oil, however, was given, and to be repeated at short intervals.

Wednesday Morning, 10 *o'clock*.—Had no sleep during the past night; the croton oil had been thrown up and the vomiting was incessant. Pulse more feeble, insatiable thirst, eructations amounting to hiccough, and all the symptoms of approaching dissolution. I visited him again at 12 of noon, when I found him propped up in bed with the bowl between his thighs, and he still vomiting and retching. I now resolved to try one more expedient, and ordering a

quart of ice-cold water to be thrown into the rectum by means of a forcing pump, I drew a sheet from the bed, twisted it into a cord, looped the middle of it over the patient's feet, and suspended him feet uppermost to the ceiling, with the injected fluid still in the bowels. While thus suspended, I kneaded the abdomen with considerable force; he was then let down, when the abdomen evidently appeared much softer, from the fact of the obstruction having been removed. Borborygmus immediately ensued; the vomiting ceased entirely from that moment, and in fifteen minutes the ice water enema came away, bringing with it fæcal matter. During the afternoon gave him two grains of calomel and half a grain of opium every hour, when at six o'clock he had a second evacuation.

Thursday Morning.—Rested well during the previous night. Pulse 90, and all the alarming symptoms disappeared. Gave a purgative enema, which brought away copious evacuations of a most offensive character.

Friday.—Still improving.

Saturday.—Pulse natural, appetite good, and bowels regular.

Sunday.—Discharged well.

PHILADELPHIA, *January* 20, 1849.

Trismus Nascentium. By SAMUEL CHAMBERLAINE, M. D.—*July 28th*, 1849.—Martha J. Turbot, æt. four weeks, in the care of a wet-nurse. The mother finding her child's "hands cold, and arms quite purple or black," suspected that the wet-nurse had given it laudanum: last evening she had left it well, in the nurse's hands.

The child was not asleep, nor did it seem heavy and stupid, as if suffering under the effects of laudanum; the eyelids were partly open, and the eyes occasionally turned upwards as if in convulsions; respiration was slow and moaning (the expiration prolonged); it was purely vesicular throughout, and the lungs were fully expanded; pulse distinct.

The complexion was purple, and the veins on its arms very conspicuous. The hands were forcibly contracted, and the thumbs drawn in towards the palms. It refused to suck my finger, which I placed in its mouth, and the mother stated that she could not make it suck. The jaw was not fast closed, but was somewhat stiff when I attempted to introduce my finger. These symptoms reminding me of Dr. Sims' theory of the Cause of Trismus Nascentium,* I examined the occiput and found it *below the parietal bones;* both edges were depressed; the parietals riding over the occipital for half the length of the lambdoidal suture.

I laid it carefully on its side, relieving the occiput of all pressure, and the child immediately began to suck its own lip. A warm bath (that the mother might not think "nothing was done"), and *to keep it carefully on its side*, was the only treatment directed.

Three hours after, I found the child wrapped carefully, after the warm bath, and lying in the mother's arms. All thought it dying. It had "turned blue several times," and became so "whenever the milk was given it." A bluish colour under its eyes was very conspicuous. The mother milked her breast, and poured a spoonful into its mouth; immediately the lips, face, and forehead became blue, and it seemed almost strangled in the attempt to swallow; *but this "blue spell" was declared by those around to be much less severe than the "spells" in my absence.* The difference was this; that I held the child myself, and supported the side of its head; the mother had held it upon her arm, "*diagonally*," and the weight of its head came chiefly upon the occiput; she

* American Journal of Medical Sciences, April, 1846.

was holding it thus, when I took the child from her, so this is not a mere inference.

The pupils were contracted now, and the child breathed with a croupy inspiration.

Treatment.—To keep it on a pillow, and on its side carefully.

Third visit, about three hours later.—It has had one or two more "blue spells," but none so severe as at the last visit. The mother had again taken it and held it, as before, on her arm diagonally; the occiput bearing the weight of its head in some degree.

On my taking it from her, raising it by the feet, and with my thumb and forefinger at the back of its neck (as with a child at birth), complete opisthotonos took place; the head was thrown strongly backwards, and remained so. I had incautiously made *greater pressure* upon the occiput; for not only the head, but part of the body was now supported by it. The child made a feeble effort at defecation, and passed some wind. There was no more stridulous breathing.

Treatment.—I now laid it myself carefully on the pillow, and insisted that it should not be taken up for any purpose, but feed while lying. A teaspoonful of castor oil was the only medicine ordered.

July 29th.—The mother reports one or two "spells" since the last visit; but that at 12 o'clock in the night a change for the better took place. She suckled it in the night. I found the child lying accurately on its side, the whole side of the head and face applied to the pillow, and the occiput relieved of all pressure. Her breathing free, easy, and regular; her hands both open; the skin red and of a healthy colour; and no appearance whatever of impeded circulation.

A careful examination of the occiput shows that it has risen *very nearly* to the level of the parietal bone; there is still, however, a slight depression, and it is still *below*, not over-riding them. I therefore explained the danger, and directed the mother to keep it still carefully on its side.

August 11th.—The child has been under occasional notice up to this date. It remains well. The occiput is still below the parietals, as may be detected by a *careful* examination; it is much nearer the level than when I first felt the head. Having frequently seen the mother carrying the child with its head always raised, and never otherwise, I conclude that her careful observance of the directions, has prevented any renewal of the attack. Her removal has prevented any further observance of the case.

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Intermittent Fever. By Dr. N. WARD, Burlington, Vermont.—While in Ceylon, I treated many cases of fever and ague most satisfactorily, with a mixture of oil of turpentine and castor oil, in the proportion of one to two drachms of the former to one ounce of the latter, and administered in a mildly cathartic dose at the beginning of every cold stage. Where relief was not promptly obtained, there were generally present signs of biliary derangement, indicating the moderate use of calomel or calomel and ipecac., after which a dose or two of the mixture usually completed the cure. This was used in cases of long standing, as well as in recent ones; and in one case of enlarged spleen with good effect.

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Dysmenorrhœa.—Dr. N. WARD, of Burlington, Vermont, reports that in several cases of painful menstruation, he has obtained the best results from the use of ½ gr. of sulph. ferri, with a slightly laxative dose of sulph. magnesia, every day during the interval of the monthly periods, or for the last ten days of the interval.

DOMESTIC SUMMARY.

Successful Amputation at the Shoulder-Joint.—Dr. PAUL F. EVE relates (*South. Med. and Surg. Journ.*, Sept. 1849,) the case of a boy, about eight years of age, who, six months before he was seen by Dr. E., had sustained a compound comminuted fracture of the right arm from a fall. There were existing an enlargement of the whole length of the humerus; a stiff shoulder-joint; two fistulæ, one about the insertion of the deltoid muscle, and the other at the head of the bone; a probe would pass, as it were, through the shoulder-joint, and in the direction of the bone, encountering rough or denuded surfaces; from both openings there was a pretty copious discharge of ill-conditioned pus.

The propriety of an operation having been decided upon in consultation, and the patient placed under chloroform, an incision from the acromion process of the scapula was made through the deltoid muscle down to the bone, laying open freely the upper fistula. The humerus thus exposed, was felt extensively involved in the disease (necrosis), and according to previous counsel, amputation at the shoulder-joint was now attempted. In performing this, an unexpected difficulty occurred—this was encountering an intimate union of the head of the bone to the glenoid cavity. In the effort to disarticulate at the joint, it was found that the knife did not and could not be made to pass around the upper extremity of the humerus—the joint was then attacked from the opposite side, but with no better success. Having confidence in the knife (English), the original position was resumed, and the head of the bone was cut through, leaving the part above its anatomical neck in the glenoid cavity of the scapula. This was now carefully dissected out by a scalpel, the bond of union being intimate and complete through the intervention of what was supposed to have been fibrin or the plastic matter of the blood. The knife passed through what originally was the epiphysis of the bone, and its edge was uninjured.

The whole humerus was found necrosed, the old bone was confined in an effort of nature to form a new one. The sequestra could only be removed by extensive incisions and forcible efforts, and the bone presented throughout a worm-eaten aspect. It was not a part, but the whole of the bone, which was diseased.

The boy had a good recovery, leaving for home in the cars a week after the operation.

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Spiritus Pyroxylicus in the Treatment of Diarrhœa and Dysentery. By DAVID W. YANDELL, M. D., (*Western Journ. Med. and Surg.* September, 1849.)—Dr. Yandell's attention was first called to the use of pyroxylic spirit or medicinal naphtha in diarrhœa, by an article by Dr. Lavirotte, of Lyons, in the *Gazette des Hopitaux*. In the present paper, Dr. Y. details the result of his trials with the article. He gives brief accounts of 23 cases—16 of diarrhœa and 7 of dysentery—treated by this agent, and the results are certainly favourable. Christison states the dose of the article as five minims; this Dr. Yandell thinks is too small a dose in diarrhœa and dysentery. He commenced with doses of six drops, three times a day; but he was, in many cases, obliged to increase the dose before any good results were manifest. He believes that it is most frequently efficacious when given in doses of twenty drops at intervals of three hours.

Touching the modus operandi of the spts. pyroxylicus, Dr. Yandell confesses himself totally at a loss to determine. I can but ask (he says) with Dr. Lavirotte—Does this medicine act like opium and the other calmants, as alum and columbo, and the other astringents, as nitrate of silver, by substitution, or rather has it a special action which modifies the intestinal secretion? It is too easily borne to warrant its being compared to nitrate of silver; and its antispasmodic properties are, to say the least, very insignificant; while its nauseous, sharp, and bitter savour would seem to indicate that it exercised an astringent influence.

On this subject Christison speaks as follows: "Its actions have not yet been carefully investigated; but it seems to be narcotic, sedative, and calmant. It certainly possesses the property of allaying the cough and febrile excitement

of phthisis pulmonalis; but general experience has not borne out the sanguine hopes entertained by Dr. Hastings, of its efficacy as a remedy in that disease. I can amply confirm all that has been said of it as an anti-emetic remedy in cases of chronic vomiting; for in cases of this affection, depending on both functional and organic diseases, I have frequently seen the vomiting arrested or greatly mitigated by pyroxylic spirit. Even creasote has appeared to be scarcely as efficacious."

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Wound of the External Carotid Artery—Ligature to the Common Carotid.—Dr. GEDDINGS relates (*Charleston Med. Journal*, September, 1849,) a case of severe wound on the right side of the neck, between the mastoid process and the neck of the jaw.

The point of the instrument penetrated within the concha of the ear, near the antitragus; and partially slitting the lobus, which was drawn down by the force of the blow, it passed deeply with the blade in a transverse direction, as regards the neck, between the mastoid process and the neck of the jaw, severing a portion of the parotid gland, the external carotid, and probably either the internal carotid or internal maxillary arteries, or both. The wound was about an inch in length, and had bled so profusely, that before the patient could be conveyed to Dr. Boylston's residence—distant about a hundred yards—he was already nearly pulseless, and was, besides, insensible from the effects of intoxication.

Dr. Boylston promptly arrested the hemorrhage, by pressure upon the wound with the thumb; but the pressure being removed for an instant, on Dr. G.'s arrival, to enable him to examine the wound, the blood gushed forth again, with such force, as to render it necessary to reapply the pressure immediately. A temporary compress was arranged of three bottle-corks, placed parallel, and rolled in soft linen, which was secured upon the part by several turns of a roller bandage, about the head and face. This means, aided by slight pressure, effectually commanded the hemorrhage, until Dr. G. could return home, to procure an artery compressor. Having provided himself with this instrument, he applied one pad on the back part of the neck, in the hollow between the spinous and the transverse processes of the spine, on the opposite side, and the other upon the course of the common carotid artery of the injured side. By turning the key of the instrument, it was found that ample pressure could thus be made, to effectually impede the transit of the blood through the vessel, and as the patient was insensible, he made no struggles to interfere with the objects had in view. In this manner, a perfect temporary command over the hemorrhage was obtained.

Between three and four hours after the accident, sufficient reaction having taken place, Dr. Deas, the regular medical attendant of the patient, applied a ligature to the common carotid artery in the omo-hyoid angle of the cervical region. During the whole time, the patient was in such a profound state of intoxication, that he had no consciousness of what was transpiring, and it was only after a profound sleep that he awoke to a sense of his situation. The case had gone on most favourably up to the date of the report, at which period the ligature had not yet come away.

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Asiatic Cholera successfully treated by Chloroform.—Dr. ANTHONY BOURNONVILLE relates (*Medical Examiner*, Aug. 1849,) eleven cases of cholera, all but one successfully treated. The following case will illustrate the treatment persued by Dr. Bournonville.

"CASE 2. George C———, undertaker, Vine and Fifth streets, was called upon to lay out for burial a patient who had died of Asiatic cholera. C. returned to his work after he had finished, took a glass of beer, and soon after was obliged to go to the privy, where he had a succession of copious watery evacuations. On passing through the yard to go into the dwelling-house, he fell prostrate on the pavement, stiff, cold as ice; cold perspiration flowed freely from his body (melting, as it were), pulseless, skin shrivelled, extremities in less than half an hour were perfectly blue to his knees and elbows; tongue cold, breath cold,

eyes sunken with livid circles about them, lips blue, excessive cramps in the stomach feeling like knots, nose contracted, ghastly appearance.

"*Treatment.* Chloroform ♏vj, turpentine gtt. 40, were given in a glass of brandy and water, which caused immediate partial revival; the patient expressed himself much better; in half an hour the dose was repeated, which caused entire revival. Sinapisms were applied to the calves of the legs and stomach; was well rubbed with cayenne pepper and brandy; mustard and cayenne pepper, flowers of sulphur, heated bricks were applied to various parts of the body; ordered afterwards the following mixture, of which he took a teaspoonful every half hour.

"℞. Chloroform,* gtt. xxx; water, ℥ij. Mix.

"Saw the patient two hours after; pulse good but rather feeble; heat of surface gradually returning; no cramps, no nausea; extremities of hands and feet still blue; face presenting a natural appearance; prescribed calomel, grs. v, inspissated ox-gall, grs. x, made into four pills, of which he took two at once, and repeated two hours after; these produced good bilious evacuations; the rubbings were continued to hands and feet. The next day I found the patient much better, the blueness had entirely disappeared, the pulse stronger; some slight excitement present, some difficulty of breathing, slight congestion of the lungs. He was bled, and on the fourth day was entirely well with the exception of debility, for which quinine gr. ss. every half hour was given, with other tonic treatment. The patient is now well."

P. Brady Esq., of Harrow, relates, in the *Medical Times*, Aug. 12th, 1848, a case of cholera, successfully treated by a mixture of chloroform and turpentine, followed by calomel and ox-gall. In a subsequent number of the same journal, he relates a second case of cholera, in which he gave the chloroform with entire success. In a still later communication, in the same journal, Oct. 14th, he strongly urges the advantages of the internal use of chloroform. He gives several formula for its administration; the latest is the following (*Med. Times*, July 7th, 1849). ℞. Chloroform, ♏xx ad xl; mucil. gum. acac., ℥iss; syrupi symp., ℥ss; sp. vini rect., ℥j; aq. puræ, ℥iij.

The chloroform should be dropped into the spirit of wine, and the solution added to the mucilage and syrup in a bottle. This should be shaken, and the water added by degrees. A fourth part of the mixture is an ordinary dose for an adult.

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Successful Amputation at the Shoulder-Joint.—Dr. Wm. Byrd Page relates (*Medical Examiner*, Aug. 1849,) a case of successful amputation of the shoulder-joint performed by him, on a man 56 years of age, labouring under abscess of the shoulder with disease of the humerus, and exhausting discharges, the result of injury received fifteen years before. The glenoid cavity, with its cartilaginous lining and margin, was found to be entirely unoccupied, with the synovial membrane smooth and healthy, which is not in accordance with the usual belief that an articular cavity is filled up, when the head of the bone is removed. The patient made a good recovery.

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Wound of the Heart—the Patient living ten Days.—Dr. W. S. Bowen presented to the New York Pathological Society the specimen, and read the notes of the following very interesting case:—

D. R., aged 21, admitted December 13th, 1848, with a stab in the left mammary region, near the sternal end of the fourth rib, about half an inch removed from the sternum; received two days before admission.

Dec. 17th. Patient complains of an acute pain near the situation of the wound; has some febrile excitement; respiration slightly accelerated. The friction sounds of pleurisy, and the evidences of moderate effusion are present. Venesection. Tart. antim.

* "The chloroform mixture is prepared some few days beforehand, as follows: Thirty drops are dropped into a two-ounce vial, which is afterwards filled with warm water, and tightly corked—this is allowed to cool; before giving the necessary dose be careful to shake well the mixture."

19*th*. Pain greatly mitigated; febrile excitement abated.

20*th*. Evidences of effusion still present; some roughness of the first sound of the heart.

22*d*. Fell on the floor of the ward, while crossing it, in a state of syncope; complains of intense pain and a sense of constriction across the chest; pulse feeble, frequent, and intermitting, the intermissions occur after every third pulsation; extremities cold; skin blanched; cold, clammy perspiration over face and body; extreme thirst.

He became comatose, with dilated, insensible pupils and stertorous breathing, and died December 23d.

Examined Nine Hours after Death.—On removing the cartilages and ribs, the left pleural cavity was discovered to be filled with blood; slight inflammatory redness of the costal pleura, and the lung was compressed to one-third its natural size. The pericardium was also filled, and the heart pushed over to the right side. Removing the heart, with its appendages, the pericardium was found perforated within the mediastinal space two inches below its reflection from the vessels to the heart. Around the orifice, for several inches, were the evidences of inflammation, both on the internal and external surfaces, to wit, capillary injection and shreds of coagulable lymph; this was more particularly the case upon its internal surface. The heart itself was found perforated half an inch to the right of the septum; the perforation entering the right ventricle about a line below the anterior semilunar valve of the pulmonary artery, passing entirely through this ventricle, and entering the septum ventricularum just at the base of the posterior valve, and coming out into the left ventricle at the orifice of the semilunar aortic valves, one of which was grazed. These orifices were lined with coagulable lymph; and, without displacing it, admitted the introduction of a good sized probe.—*New York Journ. Med.*, Sept. 1849.

Wounds of the heart, when penetrating its cavities, are always fatal, though the patient often lives for a considerable period after the accident. In the number of this journal, for August, 1829, there is an interesting paper on the subject, by Dr. J. R. Coxe, in which the learned author has collected a number of cases from various sources. In some of these, life was prolonged for sixteen or seventeen days, but they ultimately proved fatal. A large collection of cases are also to be found in the *Dictionnaire des Sciences Médicales*.

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Case of Spasms and Partial Trismus, from the prick of a Needle under the Thumb Nail. By S. P. Hildreth, M. D., of Marietta, Ohio.—Mrs. H. B., of Marietta, aged 24 years, of a very nervous temperament, while sewing on the 15th Sept., 1824, pricked her left thumb, with the needle, under the nail. Little notice was taken of so trifling an injury, until the 17th, when it became tender and painful, but without any marks of inflammation. The pain now began to ascend the arm along the course of the veins, and was so severe as to become alarming. I was called on for advice, and directed the part affected to be bathed with warm spirits of turpentine and laudanum—while she was to take inwardly, vitriolic ether and laudanum sufficient to allay the pain. By night, a few hours after my first visit, the pain had increased, and began to affect the muscles of the face and neck on the wounded side, to such a degree as to cause serious fears of trismus or lock-jaw. The doses of laudanum and ether were increased to the extent of 120 drops every hour, while a liniment of ol. succinum, and olive oil and laudanum was rubbed hot on the arm and neck, with a thick covering of warm flannel, as cold seemed to increase the pain very much. On the 18th a blistering plaster was applied round the thumb, with the expectation of relieving the irritation in the wounded nerve, by a new action excited in the neighbourhood. This, with the assistance of the warm bath, had a very beneficial effect in allaying the pain and spasmodic tendency of the disease. By continuing the laudanum in large doses, sometimes to half an ounce, the pain in the course of a week was so far subdued, as only to be troublesome occasionally.

The disease now put on more the form of hysteria; attended at times with delirium and fits of sobbing. For this, a moderate venesection was prescribed, with manifest advantage. She was also put on a course of carb. of iron, with

the intention of strengthening the nervous system, as well as the general health, which had become considerably impaired. By the first of November, the pain had much abated, and the symptoms left her, but the whole arm had become so irritable, that the least exposure to cold was painful. To overcome this sickly irritability, a cold shower bath was directed every morning, or even at night, if much painful, and with decided benefit; the arm remaining easy and comfortable for hours after the application of the water. About the middle of the month electricity was tried, by gentle shocks to the hand and arm, but with no very decided benefit. Near this time she became pregnant, which probably occasioned several severe fits of hysteria. In December, a painful affection and inflammation of the face and jaws came on, which ended in suppuration, and was discharged from the gum of the left side. This, with the change in the system consequent on pregnancy, relieved the train of spasmodic symptoms, which had so long pursued her.

From this period she continued in comfortable health till June following, when she was attacked with pain in the left side, attended with nervous irritation. For this a moderate bleeding was directed, followed with nervine medicines. About the middle of July she was delivered of a dead child, her first accouchement. The fatigue of the labour, and depression of mind from the loss of the infant, was followed by hoarseness, attended with severe pain in the breast, difficulty of breathing, and a cough which sounded like the barking of a small dog, of a highly croupy character, without expectoration. This attack began the second night after her confinement. To relieve these alarming symptoms, two or three bleedings were required, and as the blood was highly inflammatory, they were pretty free; a blister was applied to the breast; febrifuge and expectorating medicines, with mucilaginous drinks were given, accompanied with spare diet of rice-water. This course afforded relief in two or three days; it also checked the flow of milk so much that a small puppy kept her breasts free and soft. When she had recovered from this attack, there soon after commenced a severe pain in the back part of the head; it was of a neuralgic character, and so acute as to require large doses of opium to afford any relief. This remedy was used so often, and so regularly, that the worst consequences were feared from its continuance. Thinking it might arise from debility, as the fits of pain were periodical, large doses of sul. quinine were given a few hours previous to the accession. It had a fine effect for a few days, in preventing the return of the paroxysms; but in the course of a week it lost its influence over the complaint. Riding in a carriage was now tried with the happiest effect; the pain left her after travelling a few miles, and by continuing it some days, accompanied by a change in her place of residence, the pain in the occipital region left her, and did not again return. Through August and September her health improved, but at the commencement of cold weather—the last of October—the pain returned; but was now seated in the sternum, apparently directly under the bone, or in the mediastinum behind it. It was attended with little or no fever, but considerable rigours—was acute, and felt like something gnawing the flesh. A large blister relieved it in a few days, but after a week or two the same pain attacked the right side, about midway between the scrobiculus cordis and spine. It was severe, and accompanied with so much swelling of the affected part, that she feared the formation of an abscess. I did not see her until two or three days after the attack; a neighbouring physician visited her, and calling the disease a pleurisy, bled and blistered her. The blood which I saw had no inflammatory appearance; tongue not coated, heat and thirst both absent. The diagnosis was that the pain arose from the same cause as that formerly in the head and breast; nervous irritation, probably the effects of the action excited in the system from the prick of the needle, and now wandering from place to place like rheumatism. With this view, I gave a decoction of valerian and eupatorium perfol., producing free perspiration, with occasional doses of the comp. tinct. of bals. tolu. A seton, or issue was made in the side, over the seat of the pain, with directions to make it discharge freely. The intention of the issue was to divert irritation from that spot and prevent the fixing of disease on a vital part, by the continued action of pain, her lungs having been feeble for some months,

with inclination to hoarseness. The pain left her as soon as a free discharge was established; and by the use of tonic remedies her health was greatly improved. The lady lived several years after this, but finally died of consumption.

The main object in the above case, is to show from how trifling a source nervous irritation may be excited in certain female temperaments, and under what various forms and protean shapes it exercises and tries the discrimination and diagnostic powers of the physician.—*Ohio Med. and Surg. Journ.*, Jan. 1849.

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Child killed by a Drop of Laudanum.—Dr. H. V. Wooten has recorded in the *Southern Med. and Surg. Journ.*, (July, 1849,) the case of a healthy female child, five days old, to whom the mother gave a single drop of laudanum to relieve griping. In thirty minutes the breathing became slow and stertorous, with insensibility, and, notwithstanding all efforts to rouse her, she died in 11 hours. The laudanum was dropped from an ounce vial, in which there was but about ten drops. It had been stopped with a piece of twisted paper, and been hanging up about a year; all the inner surface of the lower part of the vial was incrusted with opium, and the remaining laudanum was heavily charged with the deposit resulting from evaporation.

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Statistics of the Medical Colleges of the United States, for the Session of 1847–8.

	Number of Students.	Number of Graduates.
University of Pennsylvania,	499	199
Medical College of Harvard University, Boston,	126	25
College of Physicians and Surgeons, New York,	176	39
Medical Institute of Yale College,		
Medical School of Maine (Brunswick),	74	14
Vermont Medical College (Woodstock),	105	
Medical College of Castleton, Vermont,		23
Dartmouth Medical College (N. H.),		
Berkshire Medical Institution,		26
Med. Dep. Univ., City of New York,	412	134
Albany Medical College,	101	22
Geneva Medical College,	63	18
Med. Dep. University of Buffalo,	93	19
Jefferson Medical College,	497	188
Med. Dep. Pennsylvania College,		36
Philadelphia College of Medicine,	91	21
University of Maryland,	190	64
Washington University of Baltimore,		
Med. Dep. of Columbian College (Washington),		
University of Virginia,		
Med. Dep. of Hampden Sidney College (Richmond),		
Med. College of State of South Carolina,	141	45
Med. College of Georgia (Augusta),	133	36
Med. Dep. of Univ. of Louisiana (New Orleans),		
Memphis Medical College,		
Med. Dep. of Transylvania College,	120	46
Med. Dep. University of Louisville,	331	81
Med. College of Ohio (Cincinnati),	175	50
Starling Medical College (Columbus),	173	50
Med. Dep. Western Reserve College (Cleveland),	251	
Indiana Medical College (Laporte),		
Med. Dep. Illinois College,		
Rush Medical College (Chicago),	100	18
Med. Dep. St. Louis University,	102	22
Med. Dep. University of Missouri (St. Louis),	154	38
Indiana Central Medical College,		

On the Use of the Ethereal Solution of Gun Cotton in the Cure of Erectile Tumours without Operation. (*N. W. Med. and Surg. Journ.*, Sept. 1849.)—Struck with the contractile power possessed by the ethereal solution of gun cotton, Dr. BRAINARD, of Chicago, was induced to test its application to the surface of erectile tumours.

In the case of a nævus, of the size of a very large strawberry, situated on the anterior fontanelle of a young infant, Dr. B. covered the tumour with a solution of gun cotton; and although it was much elevated above the surface, he had the satisfaction of seeing it brought by the contractile power of the liquid in drying, to a level with the sound skin. It was allowed to remain several weeks, and then a fresh application made; and at the present time scarcely any trace of the nævus remains, although but two applications have been made.

The next case was that of a young child, with a nævus ¾ of an inch in length, and ½ an inch in breadth, situated beneath the right eye. This, at birth, was scarcely perceptible; but, in six months, had acquired the size mentioned, and was rapidly increasing. In order to avoid the irritation resulting from its proximity to the eye, the application was made during the sleep of the infant, and was required to be renewed twice a week, on account of its becoming loosened. After two months use, the nævus is scarcely perceptible, and the use of the solution has been for some time discontinued.

It is not improbable that, by preventing the necessity of resorting to operations in such cases, this liquid may find a use more important than any to which it has before been applied.

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Cholera in the United States.—During the past summer, cholera has prevailed over a very large portion of this country, in some places affecting a large portion of the population, and with great fatality. New Orleans and New York appear to have been the principal foci from which the disease spread. Commencing at the first-named city, it extended up the Mississippi, and all its tributaries, nearly to their sources. From New York, it seems to have extended up the North River to Albany, thence along the great route of travel westwardly, to Buffalo, &c. Boston, Montreal, &c., also suffered from a visitation; but whether they constituted distinct foci, or the disease extended to them from New York, we are unable to say.

We do not possess, at present, the materials for writing a history of the cholera in the United States, but we have collected some interesting statistics which may constitute a useful contribution for that purpose.

Philadelphia.—The following table exhibits the daily progress of the disease in Philadelphia, during the past season. It will be perceived that the disease commenced on the 30th of May. The first case was that of a man who came to this city from New York, labouring under the disease; no connection could, however, be traced between this and the subsequent cases, nor is there any ground to believe that the early cases were connected one with the other.

The disease reached its height on the 14th of July, a period of 46 days, when 84 cases were reported, and has since gradually declined, and at this moment may be considered as extinct.

By reference to the statistics of the cholera in this city in 1832, at p. 268, *et seq.*, of our number for November, 1832, it will be perceived that the first case was reported on the 11th of July, and the last on the 12th of September, a period of 65 days; whilst in the present year, the first case was reported 30th of May, and the Board ceased to report on the 18th of August, a period of 82 days. Though the disease prevailed for a longer period in 1849 than in 1832, and the population has increased probably over 30 per cent., the number of cases and of deaths during the two periods were nearly the same. In 1832, the cases being 2314, and deaths 754; while in 1849, the cases were 2221, and deaths 744.

Table exhibiting the Progress of Cholera in Philadelphia during the Recent in each of the Public Hospitals, Prisons, &c.

		PRIVATE PRACTICE.																							
		City.		Southwark.		Kensington.		Spring Garden.		Moyamensing.		Northern Liberties.		Richmond.		Passayunk.		Penn District.		West Philadelphia.		Residence not stated.		Coroner.	
1849.		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
May	30	-	-	1	1	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-
	31	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
	13	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	16	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18	-	-	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19	2	2	2	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	20	2	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	21	-	1	5	1	1	-	-	-	2	2	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	22	3	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	2	-	-	-	1	1	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
	24	-	-	1	1	-	-	1	-	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-
	25	4	2	8	2	5	2	1	1	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-
	26	3	3	2	1	9	4	2	1	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	27	10	2	14	3	8	2	5	3	1	-	4	2	-	-	-	-	-	-	-	1	-	-	-	-
	28	12	3	11	3	8	4	2	1	-	-	5	-	-	-	1	1	-	-	1	1	-	-	-	-
	29	11	3	17	2	2	-	5	1	6	3	4	1	-	-	-	-	-	1	-	1	-	-	-	-
	30	15	7	13	1	4	2	2	1	1	-	5	4	6	2	-	-	1	1	-	1	-	-	-	-
July	1	4	4	6	2	3	1	1	3	2	1	2	-	1	2	-	-	-	-	-	-	-	-	-	-
	2	14	5	12	4	8	3	4	1	9	1	5	3	1	-	-	-	-	-	-	-	-	-	-	-
	3	9	3	7	-	9	2	7	3	16	2	3	1	3	1	1	-	-	-	-	-	-	-	-	-
	4	10	1	5	2	1	-	3	1	10	3	1	1	1	-	-	-	-	-	-	-	-	-	-	-
	5	7	4	3	2	11	2	3	1	3	1	7	2	1	-	-	3	-	-	-	-	-	-	-	-
	6	7	2	6	1	-	-	-	-	2	-	3	-	-	-	-	1	-	-	-	-	-	-	-	-
	7	13	2	7	1	-	-	3	-	3	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-
	8	7	4	-	-	-	-	-	-	1	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-
	9	4	3	10	2	3	-	1	-	3	2	3	1	-	-	-	-	-	-	-	-	-	-	-	-
	10	13	1	4	-	8	1	-	-	3	2	1	1	-	-	1	1	-	-	-	-	-	-	-	-
	11	20	2	16	5	5	1	1	-	13	4	1	-	2	1	-	-	-	-	-	-	-	-	-	-
	12	17	5	7	1	8	-	1	-	8	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	13	15	4	6	1	16	6	4	1	5	-	5	1	1	-	3	-	1	-	-	-	-	-	-	-
	14	8	2	9	-	7	-	3	1	7	3	9	6	3	-	-	-	-	-	-	-	-	-	-	-
	15	11	2	4	-	2	-	2	2	3	-	4	1	-	-	-	-	-	-	-	-	-	-	-	-
	16	12	1	4	1	1	-	1	-	6	1	6	2	1	-	-	-	-	-	2	1	-	-	-	-
	17	16	10	1	1	13	2	5	1	-	-	7	-	1	-	-	-	1	1	-	-	-	-	-	-
	18	14	3	9	-	12	3	7	-	8	-	5	2	-	-	-	-	-	-	1	-	-	-	-	-
	19	12	2	2	2	6	1	5	1	8	1	2	-	-	-	-	1	-	-	-	-	-	-	-	-
	20	11	4	1	-	8	3	3	-	5	1	1	-	2	-	-	-	-	-	-	-	-	-	-	-
	21	5	3	7	2	6	-	-	1	2		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	22	2	2	-	-	1	-	-	-	4	3	-	-	1	-	-	-	-	1	-	-	-	-	-	-
	23	10	2	4	-	-	-	2	1	4	2	1	1	2	1	-	-	1	-	-	-	-	-	-	-

Epidemic, showing the Number of Cases and of Deaths in each District, and Arranged from the Official Documents, by the Editor.

HOSPITALS.																																Total.	
City.						Southwark.		Moyamensing.		Northern Liberties.		Richmond.		Bush Hill.		Almshouse.		County Prison.		West Philadelphia.		Kensington.		Spring Garden.			
Cherry Street.		Pine Street.		South Street.																													
C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	13
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-	23	20
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	10	5	-	-	-	-	-	-	-	-	-	-	-	-	65	25
3	1	-	-	-	-	-	-	-	-	-	-	-	-	2	1	7	7	-	-	-	-	-	-	-	-	-	-	-	-	66	21
2	4	-	-	-	-	-	-	-	-	3	-	-	-	1	1	8	7	2	-	-	-	-	-	-	-	-	-	-	-	47	20
-	-	-	-	-	-	1	-	7	3	1	1	-	-	-	-	5	3	-	-	-	-	-	-	-	-	-	-	-	-	53	19
1	-	-	-	-	-	-	1	5	1	-	1	-	-	-	-	8	7	1	-	-	-	-	-	-	-	-	-	-	-	34	12
-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	9	4	-	-	-	-	-	-	-	-	-	-	-	-	40	9
1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	8	4	-	-	-	-	-	-	-	-	-	-	-	-	23	10
-	-	-	-	-	-	1	-	3	2	-	-	-	-	1	1	9	9	1	-	-	-	-	-	-	-	-	-	-	-	39	20
2	1	-	-	-	-	1	-	1	1	1	-	-	-	-	-	11	6	-	-	-	-	-	-	-	-	-	-	-	-	47	15
2	3	-	-	-	-	4	-	3	4	2	1	-	-	1	-	13	11	-	-	-	-	-	-	-	-	-	-	-	-	83	32
3	-	-	-	-	-	3	2	1	-	3	-	1	-	3	1	24	13	-	-	-	-	-	-	-	-	-	-	-	-	80	26
3	-	-	-	-	-	2	-	3	1	-	1	-	1	-	-	17	14	-	-	-	-	-	-	-	-	-	-	-	-	81	30
1	1	3	1	-	-	2	-	5	3	4	2	-	-	2	1	20	12	-	-	-	-	1	-	-	-	-	-	-	-	84	32
-	1	1	1	-	-	-	-	2	1	3	1	-	-	1	-	21	7	-	-	-	-	-	-	-	-	-	-	-	-	54	16
-	-	1	-	-	-	1	2	1	-	1	-	-	-	2	1	20	14	-	-	-	-	-	-	-	-	-	-	-	-	59	23
1	-	1	-	-	-	1	-	2	-	-	1	1	-	2	-	20	14	-	-	-	-	1	1	-	-	-	-	-	-	73	31
1	1	-	-	1	-	-	-	2	2	1	2	-	-	1	-	14	9	-	-	-	-	-	-	-	-	-	-	-	-	76	22
1	-	-	-	-	-	3	-	3	-	2	1	-	-	3	-	5	14	-	-	-	-	-	-	-	-	-	-	-	-	53	22
-	-	-	-	1	-	-	-	1	-	3	-	-	-	1	1	10	11	2	-	-	-	-	-	-	-	-	-	-	-	49	20
-	-	1	-	-	-	3	1	-	-	-	1	-	-	1	1	6	5	-	-	-	-	-	-	-	-	-	-	-	-	31	14
1	-	1	-	-	-	-	-	4	-	2	1	-	-	-	1	12	5	-	-	-	-	-	-	-	-	-	-	-	-	29	12
1	1	-	1	-	-	-	-	2	-	1	1	-	-	-	-	5	9	-	-	1	1	-	-	-	-	-	-	-	-	34	20

PRIVATE PRACTICE.																										
1849.	City.		Southwark.		Kensington.		Spring Garden.		Moyamensing.		Northern Liberties.		Richmond.		Passayunk.		Penn District.		West Philadelphia.		Residence not stated.		Coroner.	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C	D.	C.	D.
24	9	-	10	1	4	2	3	-	8	4	4	1	3	-	-	-	-	-	-	1	-	-	-	-
25	3	-	1	-	9	3	3	-	6	1	7	1	1	1	-	-	1	-	-	-	-	-	-	-
26	6	2	1	-	8	-	2	-	2	-	7	2	-	-	2	-	-	-	-	-	-	-	-	-
27	9	2	3	-	3	2	1	-	3	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-
28	2	2	2	-	-	1	3	1	1	1	1	-	-	-	-	-	-	-	2	2	-	-	-	-
29	6	5	4	3	-	-	2	1	6	-	2	-	-	-	-	-	-	-	2	1	-	-	-	-
30	7	4	4	-	3	1	4	1	1	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
31	6	3	4	-	2	-	2	-	3	-	3	-	-	-	-	-	-	-	6	2	-	-	-	-
August 1	3	1	2	-	2	-	-	-	1	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-
2	-	1	5	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
3	2	-	1	-	1	-	1	-	4	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-
4	1	1	2	-	1	1	-	1	1	-	1	-	-	-	-	-	-	-	2	1	-	-	-	-
5	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
6	1	1	4	1	-	-	-	-	3	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
7	1	-	4	-	4	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	3	-	2	-	2	-	1	1	3	1	-	-	-	-	-	-	3	2	-	-	-	-
9	1	1	3	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
10	-	-	5	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
11	3	1	4	-	-	-	1	2	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-
12	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	1	3	4	3	-	-	-	-	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
14	6	-	-	-	1	-	1	-	2	1	2	2	-	-	-	-	-	-	-	-	1	-	-	-
15	3	-	1	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	1	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	1	-	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	388	127	276	51	218	54	108	33	194	52	147	38	39	13	10	3	14	4	21	11	6	1		

The following table exhibits the total weekly mortality in Philadelphia, during the past seventeen weeks, with that from bowel complaints, and also the same during the corresponding period of last year, as a means of comparison, and shows the influence of the disease on the whole mortality. It will be perceived that, not only is the whole mortality increased, but that, independent of cholera, the mortality from other bowel affections is larger, and even that from other diseases is increased. Thus, in the week ending 21st July, when the epidemic was at its height, the total mortality was 505 against 182 for the corresponding period of last year. The total from bowel affections was 327 against 67 for last year. If we subtract the number of deaths from cholera from the whole number from bowel diseases, it gives the mortality from the latter 132 against 67 last year. Again, if the deaths from bowel complaints be taken from the total mortality, it will give the mortality from other diseases than bowel complaints during the week ending 21st July, 1849, 178, and for the corresponding period of last year 115.

HOSPITALS.																											
City.						Southwark.		Moyamensing.		Northern Liberties.		Richmond.		Bush Hill.		Alms House.		County Prison.		West Philadelphia.		Kensington.		Spring Garden.		Total.	
Cherry Street.		Pine Street.		South Street.																							
C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
1	-	1	1	-	-	3	-	5	1	1	1	-	-	-	-	12	6	-	-	-	-	1	-	-	-	65	18
-	-	-	-	-	-	-	-	3	2	-	-	1	-	-	-	5	6	-	-	-	-	1	-	-	-	41	14
1	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	4	5	-	-	-	-	1	-	-	-	38	9
-	-	-	-	-	-	4	-	2	1	-	-	-	-	-	-	3	2	-	-	-	-	-	-	-	-	34	8
1	-	-	-	1	-	3	-	1	-	-	-	2	-	-	-	5	6	2	-	-	-	-	-	-	-	26	12
1	1	-	-	-	1	2	-	6	-	3	-	1	1	-	-	5	3	21	4	-	-	-	-	-	-	61	20
-	-	-	-	-	-	1	-	5	-	1	1	-	-	-	-	4	2	4	3	-	-	-	1	-	-	39	13
2	-	-	-	-	-	4	1	2	-	5	1	-	-	-	-	-	1	-	4	-	-	-	-	-	-	39	12
1	-	-	-	-	-	1	-	1	-	1	1	-	-	-	-	-	-	3	-	-	-	2	-	-	-	19	4
-	-	-	-	-	-	3	-	4	-	2	1	-	-	-	-	-	-	3	1	-	-	-	-	-	-	19	3
-	-	-	-	-	-	-	-	5	-	1	-	-	-	-	-	3	3	2	2	-	-	1	1	-	-	23	8
-	-	-	-	-	-	2	-	1	-	-	1	1	-	-	-	2	-	3	1	1	-	2	1	-	-	19	7
-	-	-	-	-	-	3	-	1	-	2	-	-	-	-	-	-	-	1	2	-	-	1	-	-	-	13	2
-	-	-	-	-	-	2	-	7	-	-	-	1	1	1	-	-	-	-	-	-	-	1	-	-	-	24	3
-	-	-	-	-	-	2	1	4	1	-	-	-	-	-	-	2	-	5	-	-	-	-	-	-	-	24	2
-	-	-	-	-	-	4	-	3	1	1	-	1	-	-	-	-	1	1	1	-	-	2	2	-	-	26	9
-	-	-	-	-	-	3	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	13	3
1	1	-	-	-	-	1	-	4	-	-	1	-	-	-	-	1	-	4	-	-	-	-	-	-	-	16	3
-	-	-	-	-	-	-	-	2	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	18	4
1	1	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	7	1
-	-	-	-	-	-	-	1	3	1	-	-	1	-	-	-	-	-	5	1	-	-	-	-	-	-	17	10
1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	3
2	1	-	-	-	-	-	-	1	1	-	-	1	-	-	-	2	1	-	-	-	-	-	-	-	-	12	3
-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2
-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	4	1
-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1
35	19	9	4	3	1	60	9	161	26	47	22	13	3	26	16	314	229	63	19	2	1	14	6			2221	744

The same is true as regards New York. See Table, p. 562. Thus, the greatest mortality occurred in the week ending July 21st, when the total mortality was 1409 against 299, the mortality of the corresponding week in 1848. The mortality from cholera was 714, and the total mortality from bowel complaints was 1011. If we subtract the number of deaths from cholera from the whole mortality from bowel complaints, it leaves 297 against 90 the preceding year; and if we subtract the mortality from bowel complaints from the entire mortality, it gives the mortality from other diseases, 398 against 209 for the corresponding week of last year.

The same rule likewise holds good as regards Boston. See Table, p. 563.

PHILADELPHIA.

1848. Week ending.	Total mortality.	Cholera asphyxia.	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Inflammation of stomach and bowels.	Other diseases of stomach and bowels.	Total from bowel complaint.
June 3	130	0	6	1	1	0	6	0	14
" 10	165	0	16	3	3	4	5	5	36
" 17	181	0	22	1	6	5	5	1	30
" 24	244	0	45	3	4	16	7	1	76
July 1	220	0	48	3	5	13	10	2	81
" 8	228	0	53	3	10	11	5	7	89
" 15	208	0	41	4	4	20	10	3	82
" 22	182	0	33	3	5	14	12	0	67
" 29	194	0	34	2	8	20	4	0	68
August 5	160	0	35	1	2	7	9	1	55
" 12	174	0	21	0	8	20	4	3	56
" 19	174	0	21	1	10	16	8	2	58
" 26	154	0	19	0	2	17	7	3	48
September 2	168	0	13	0	4	17	6	3	43
" 9	134	0	16	0	4	10	5	4	39
" 16	132	0	10	0	6	9	2	4	31
" 23	135	0	5	0	1	14	8	1	29
Totals	2983	0	438	25	83	213	113	40	902

1849. Week ending.	Total mortality.	Cholera asphyxia.	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Inflammation of the stomach and bowels.	Other diseases of stomach and bowels.	Total from bowel complaint.
June 2	138	3	3	1	3	2	3	0	15
" 9	130	3	0	1	2	2	5	1	14
" 16	119	5	6	3	4	1	1	0	20
" 23	184	14	20	5	2	31	3	1	48
" 30	343	80	40	9	13	15	8	2	167
July 7	404	170	53	11	13	14	8	0	269
" 14	458	179	57	6	15	29	4	3	293
" 21	505	195	68	5	12	28	14	5	327
" 28	415	136	58	3	10	38	8	1	254
August 4	360	95	54	9	12	40	5	3	218
" 11	303	40	46	1	13	42	4	3	149
" 18	328	42	56	5	18	40	3	3	167
" 25	248	16	32	2	12	46	7	6	121
September 1	231	18	23	2	10	39	6	2	100
" 8	214	16	14	2	8	29	3	1	73
" 15	207	4	11	0	8	28	9	4	64
" 22	183	6	9	2	4	23	4	0	48
Totals	4770	1022	550	67	159	447	95	35	2347

History of the Asiatic Cholera at Quarantine, Staten Island, New York, in Dec. 1848, *and Jan.* 1849. By JOHN W. STIRLING, M. D., Assistant Physician Marine Hospital. (*New York Journ. Med.*, July, 1849.)—In our number for April last, p. 463, we gave a summary of the interesting account by Dr. Whiting, of the appearance of cholera at Staten Island. It will be remembered that the disease first presented itself on board the ship New York, which arrived from Havre on

the 2d of December, 1848, and that the disease was confined to the crew, and a few of the patients at the quarantine station. In the present paper, Dr. Sterling presents some particulars in relation to the course of the cholera at quarantine, which are of great interest in reference to the question of the mode of reduction of the disease. He states:—

"On the 2d and 3d of December, 11 patients were sent up to the hill hospitals, with their effects, directly from the ship New York, labouring under the cholera. On the afternoon they were transferred, with the exception of two of them deceased, to the cholera hospital at the public stores. The disease did not reappear at these upper hospitals (notwithstanding 94 convalescents, who had been for several days in contiguity with the German and French emigrants, were distributed throughout their wards, then crowded with patients, on the 6th of December) until the 20th of said month; whilst it appeared in the lower hospital, adjacent to the water, on the 10th of December, to which hospital six convalescents only were sent. Besides, when it did break out in the lower hospital, it did not originate with the convalescents admitted, nor in the ward in which they were located, but in the story below it, and on the opposite side of the building, and afterwards skipped about from ward to ward, without any regard to contiguity, until it reached its acmé.

"There was one very mysterious circumstance noticed in the late visitation of the cholera at quarantine, if we view it with the eye of the contagionist; I allude to its restricted limitation, or insulation. By this I mean to imply that the cholera was confined to the quarantine enclosure. It did not overleap its barriers. Notwithstanding more than one hundred of the emigrants landed from the ship New York, scaled the walls and fled to the city, or adjacent villages, this disease would not accompany them; neither did the numerous visiters, whom curiosity or humanity incited to visit the hospitals, receive or convey it. Also, as I am credibly informed, as soon as these emigrants were brought from the vessel, so soon did the cholera abandon it. The crew, who remained on board, who scrubbed and cleaned the planks, broke up the bunks in which the steerage passengers had slept for weeks, and ventilated and fumigated the hold or between decks, did not contract the disease, but remained quite healthy. The cabin passengers, who, with one of the steerage, went direct to the city, with their effects, did not suffer from the disease, nor communicate it to others. From the foregoing, then, we are naturally brought to the conclusion that, if the cholera be contagious, a peculiar constitution of the atmosphere must exist in order to favour its propagation."

Dr. Sterling notices the striking coincidence between the manner of introduction and duration of the cholera at New Orleans, and its visitation at the quarantine station;* and with justice states that these "tend strongly to corroborate the opinion, that the cholera can be introduced into a country by vessels from remote parts, and when so introduced propagated by contagion; an opinion gaining ground daily with some of our most enlightened physicians, even of those whose views were diametrically opposite in 1832.

"There is, certainly, in the mode of introduction of the cholera in these two places, much to stagger the belief of the non-contagionist, while the testimony on the part of the contagionist is thereby strengthened; yet, if we sift the matter thoroughly, we will find that there was a fortuitous concurrence of incidents well calculated to throw doubt on the one side, while at the same time it confirmed the faith of the other.

"The cholera had already prevailed in Europe for a considerable length of time. Its march was still onward and westward, and as it advanced, according to those who have watched its journeyings, at the rate of 300 miles per month, or thereabouts, we had ground for the belief that it was not far distant.

* See Dr. Fenner's account of the former, in the April number of this Journal, p. 541, *et seq.*, and of the latter, the same number, p. 463.

New York. The following table exhibits the weekly mortality in the city of New York during the past nineteen weeks, showing the total mortality, and that from bowel complaints during that period, and also the same during the corresponding periods of last year. It will be perceived that New York has suffered very seriously from this visitation of disease.

NEW YORK.

1848.											1849.										
Week ending.	Total mortality.	Cholera asphyxia.	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Inflammation of the stomach and bowels.	Other diseases of stomach and bowels.	Mortality from bowel complaint.	Week ending.	Total mortality.	Cholera asphyxia.	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Inflammation of stomach and bowels.	Other diseases of stomach and bowels.	Mortality from bowel complaint.
May 20	285	0	2	0	3	5	14	2	26	May 19	323	1	0	6	5	6	10	1	29
" 27	247	0	5	0	4	4	11	2	26	" 26	294	13	0	1	4	3	16	0	37
June 3	228	0	4	0	2	4	6	1	17	June 2	270	29	2	9	11	6	11	1	69
" 10	245	0	4	2	1	7	8	0	22	" 9	409	121	4	12	17	11	13	3	181
" 17	250	0	7	0	5	4	19	2	37	" 16	425	145	5	13	4	1	15	0	183
" 24	263	0	8	0	7	5	9	1	30	" 23	473	152	10	10	10	13	16	0	211
July 1	288	0	22	0	8	11	13	1	55	" 30	734	286	34	15	17	18	18	1	389
" 8	285	0	29	0	10	18	19	0	76	July 7	702	317	31	10	25	25	7	0	415
" 15	284	0	26	4	13	24	18	2	83	" 14	991	484	64	18	55	44	14	1	680
" 22	299	0	29	1	19	26	14	1	90	" 21	1409	714	102	34	61	71	29	0	1011
" 29	403	0	52	6	19	44	20	1	142	" 28	1352	692	108	24	49	79	16	2	970
August 5	368	0	44	3	12	41	19	1	120	August 4	1278	678	105	20	54	58	26	3	944
" 12	338	0	52	1	22	41	14	2	132	" 11	1011	423	86	19	64	68	21	2	683
" 19	351	0	46	0	10	46	13	0	115	" 18	968	387	98	13	55	78	18	3	652
" 26	331	0	37	2	18	34	12	1	104	" 25	749	233	67	8	52	78	17	6	461
September 2	309	0	31	1	20	37	17	0	106	September 1	687	171	68	3	40	79	11	3	375
" 9	278	0	22	2	11	33	14	1	83	" 8	520	94	47	4	24	87	12	1	239
" 16	282	0	27	1	13	38	14	0	93	" 15	378	36	23	0	21	65	12	3	160
" 23	261	0	17	0	7	22	7	3	56	" 22	366	21	19	1	14	55	16	2	128
Totals	5595	0	474	23	204	444	261	21	1413	Totals	14,339	4997	873	220	582	837	298	32	7817

Boston. The following table shows the weekly mortality for the past thirteen weeks, with that from cholera and other bowel affections, and the same for the corresponding periods of last year.

BOSTON.

1848. Week ending.	Total mortality.	Cholera asphyxia.	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Inflammation of the bowels.	Diseases of the bowels.	Total from bowel complaints.
July 1	62	0	2	0	0	0	0	4	6
" 8	53	0	0	0	1	2	0	2	5
" 15	48	0	0	0	0	2	0	2	6
" 22	71	0	5	1	2	3	2	15	26
" 29	101	0	8	1	0	13	0	28	50
August 5	92	0	5	2	3	3	2	30	45
" 12	119	0	7	1	0	8	2	41	59
" 19	109	0	3	0	0	21	0	43	69
" 26	111	0	1	2	1	23	0	43	68
September 2	108	0	4	0	2	18	0	34	58
" 9	97	0	0	0	0	25	0	28	53
" 16	89	0	4	0	5	24	0	9	42
" 23	101	0	3	0	0	22	1	20	46
Totals	1161	0	42	7	14	164	7	299	533

1849. Week ending.	Total mortality.	Cholera asphyxia.	Cholera infantum.	Cholera morbus.	Diarrhœa.	Dysentery.	Inflammations of the bowels.	Diseases of the bowels.	Total from bowel complaints.
June 29	88	2	1	1	1	2	2	0	9
July 6	74	2	3	3	1	2	2	0	13
" 13	69	13	1	0	2	1	4	0	21
" 20	119	15	2	1	2	3	5	7	35
" 27	105	10	4	3	4	3	2	13	39
August 4	157	52	7	4	4	3	2	10	92
" 11	240	94	4	4	9	20	2	33	166
" 18	257	111	4	1	13	21	0	31	181
" 25	215	75	7	6	12	13	1	22	136
September 1	236	94	3	7	5	28	0	31	168
" 8	205	61	7	1	17	34	0	23	143
" 15	160	42	6	0	3	21	0	21	96
" 22	149	22	7	2	4	26	1	14	82
Totals	2174	294	56	33	84	207	21	205	1181

Cholera in New Orleans.—Dr. J. C. SIMONDS gives, in the *Charleston Medical Journal* (Sept. 1849), some interesting statistical statements respecting the cholera in New Orleans, from which we glean the following:—

On the 12th December, 1848, the first death from cholera occurred at the Charity Hospital, in the person of a woman who had the day previous arrived in the city on the ship Swanton. Prior to that date our city was perfectly and

unusually healthy. Notwithstanding the very large number of strangers in the city, in addition to our own citizens, the reports for the two preceding weeks present the very low figures 44 and 68 for the total interments. During the preceding part of the month, no *death* from cholera morbus had been reported in this city or Lafayette, nor had any increase been observed in the number of cases of dysentery and diarrhœa. Of 143 deaths occurring in this city and Lafayette, during the first 11 days of December, only 17 were attributed to diarrhœa and dysentery, both acute and chronic; a less proportion could scarcely be expected during the non-existence of an epidemic. After having swept away about 4000 victims during seven months, it has ceased its ravages, and has left the city as healthy, as it was at its invasion.

*Official Weekly Reports of the Board of Health.**

Week ending	Cholera.	Other dis.	Total.	Week ending	Cholera.	Other dis.	Total.
Dec. 2,	—	48	48	April 7,	116	109	225
9,	—	48	48	14,	73	124	197
16,	26	90	116	21,	101	131	232
23,	234	117	351	28,	70	107	177
30,	538	124	662	May 5,	114	111	225
Jan. 6,	392	160	552	12,	127	108	235
13,	156	127	283	19,	103	99	202
20,	110	96	206	26,	95	98	193
27,	no report			June 2,	69	51	120
Feb. 3,	53	89	142	9,	82	100	182
10,	86	91	177	16,	66	87	153
17,	64	93	157	23,	47	71	118
24,	4	70	74	30,	32	81	113
Mar. 3,	25	87	112	July 7,	15	77	92
10,	50	112	162	14,	4	94	98
17,	204	92	296	21,	—	94	98
24,	204	92	296	28,	2	64	66
31,	238	140	378	Aug. 4,	1	85	86
				Totals,	3548	3399	6963

In the preceding table is included the deaths in the Charity Hospital. The total interments in the Lafayette Cemetery, during the same period, not included in the reports of our Board of Health, amount to 1305, of which 739 are stated to have died in New Orleans.

Interments in the Lafayette Cemetery, from December 1848, *to July*, 1849, *inclusive.*

	Cholera.	Other dis.	Total.		Cholera.	Other dis.	Total.
Dec.,	43	69	112	April,	60	86	146
Jan.,	33	50	83	May,	118	119	237
Feb.,	14	50	64	June,	108	261	369
March,	111	77	188	July,	7	99	106
					494	811	1305

The following table, compiled with great care from original sources, as far as possible, shows accurately the progress of the disease, presenting the daily interments, and specifying those from cholera, during the months of December and January. The difficulty of obtaining the details in a form suitable for analysis, except by the expenditure of an undue amount of time and labour, has prevented an extension of the investigation through the whole period of the existence of cholera in this city.

* During parts of December and January the reports of the Board were published daily, the figures given have therefore been collected from the daily reports. It may be observed that these figures do not correspond with those given in the New-Orleans Medical and Surgical Journal, but we have given the preference to *official* documents.

Daily Statement of Deaths from Cholera and other Diseases in New Orleans and Lafayette, during the Months of Dec. 1848, *and Jan'y* 1849.

		Cholera.	Other dis.	Total.
Dec. to	11,		143	143
Dec.	12,	1	19	20
	13,	1	12	13
	14,	3	25	28
	15,	4	18	12
	16,	17	16	33
	17,	10	20	20
	18,	31	11	52
	19,	40	29	69
	20,	51	22	73
	21,	47	27	74
	22,	89	23	112
	23,	74	13	87
	24,	66	10	76
	25,	82	27	109
	26,	58	19	77
	27,	106	22	128
	28,	87	17	104
	29,	71	19	90
	30,	62	19	81
	31,	82	26	108
		982	547	1529
Jan'y.	1,	88	24	112
	2,	64	28	92
	3,	38	31	69
	4,	33	24	57
	5,	31	22	53
	6,	25	24	49
	7,	29	26	55
	8,	31	31	62
	9,	21	16	37
	10,	13	13	26
	11,	23	24	47
	12,	24	20	44
	13,	22	15	37
	14,	19	18	37
	15,	13	11	34
	16,	16	18	34
	17,	16	12	28
	18,	19	16	35
	19,	12	8	20
	20,	15	16	31
	21,	10	11	21
	22,	12	18	30
	23,	8	14	22
	24,	5	19	24
	25,	9	15	24
	26,	8	17	25
	27,	10	22	32
	28,	14	19	33
	29,	5	12	17
	30,	9	13	22
	31,	13	24	37
		1638	2137	1775

Missouri, *St. Louis.*—The following table, compiled from the Register's office, shows the whole number of interments in the cemeteries of this city, from the 23d of April, to the 6th of August. The period embraced is a little over one hundred days, and the aggregate of deaths is 6000! And this in a population of 90,000, at the most! For the week ending

	Total.	Cholera.	Under 5 years.
April 30,	131	41	50
May 7,	135	78	18
" 14,	273	185	46
" 21,	192	127	24
" 28,	186	115	44
June 4,	144	75	34
" 11,	283	191	72
" 18,	510	404	106
" 25,	763	589	164
July 2,	903	619	230
" 9,	773	591	192
" 16,	867	639	197
" 23,	442	269	140
" 30,	225	93	94
Aug. 6,	152	34	72
	5989	4060	1493

Ohio, *Cincinnati.*—The official report of the Board of Health of this town, recently issued, states the mortality from all diseases during the months of May, June, July, and August, to have been 6459; that from cholera during the same period was 4114. The number of actual residents of Cincinnati is estimated by the Board of Health not to have exceeded 90,000, and the mortality, therefore, during four months, was equal to $\frac{1}{15}$ of the whole population.

Treatment of Cholera.—Dr. J. B. Pigne, in a paper in the *New Orleans Med. and Surg. Journ.*, July, 1849, on the nature and treatment of the epidemic cholera, as it prevailed in Attakapas, La., in March last, gives the following account of his mode of treating the disease, which he states to have been very successful:—

"The treatment," he says, "which I am in the habit of employing, and which has always succeeded most admirably in every case where the nervous symptoms do not predominate, and even often in this stage of the disease, is as fol-

lows: If it were necessary, I could invoke the testimony of seven or eight proprietors of large plantations, amongst whose slaves I have had numerous cases; and also, some of my medical brethren, who have adopted the same mode of treatment, at least the fundamental part of it, could bear witness to its efficacy: ℞. Red oak bark, Peruvian bark, of each, about 10 lbs. Water, about 30 lbs. Boil for half an hour, strain, and keep for use.

"The red oak is preferable, and the bark of both should be taken in preference from the trunk near the roots, and should be used fresh.

"The above decoction forms the basis of my treatment, but the manner of administering it is of importance. The following is the plan I recommend:—

"As soon as I am called to a person suffering from this disease, I begin by giving a small injection of the cop. decoction, and administering half a tumbler by the mouth. In general, this first injection and dose are retained but a few minutes; as soon as they are rejected, I repeat the dose. This second dose is usually retained a quarter of an hour, and I continue repeating it three, four, or even five times, until the vomiting and purging cease. We generally find that each successive dose remains longer on the stomach, and in two instances only was I compelled to administer as many as six; often a single dose is sufficient. By the above treatment, the vomiting, if it had existed, is first arrested, and then the diarrhœa. Some hours after, the patient is often wholly cured; in a certain number of cases, the skin becomes hot and moist. If I find then that the pulse is quick, and especially if it is full, I bleed, even during the perspiration. Twenty-four hours after the arrest of the purging, I give a pretty strong dose of some drastic purgative. I prefer the purgative of leroz (one tablespoonful and a half), and in addition, I make the patient drink every half hour, half a tumbler of the decoction.

"Once the looseness of the bowels arrested, I act according to circumstances; according to the indications presented; bleeding, baths, sedative draughts, etc.

"When not called upon till the cold stage has supervened, I give as above the oak decoction; but to produce reaction, heat of the skin, and warm perspiration, administer every half hour a tablespoonful of the following mixture: ℞. Laudanum, ʒii; Spts. of Ammonia, ʒiv; Sugar, ℥j; Water, ℥iij. M.

"At the same time, the patient is surrounded with hot bricks. (It is essential, notwithstanding the cramps, not to use friction: the heat and sweating are more certain to remove them than friction), and when reaction comes on, I generally bleed, and act according to indications."

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Local Treatment of Erysipelas.—The local treatment of erysipelas is a subject of much interest to the profession. Probably there is no question in the whole range of medical discussion, in which there is more contrariety of opinion, and difference in the experience of medical practitioners. Every physician has his peculiar mode of practice, founded upon successful individual experience; and while some are prepared to advocate the non-application of any external means, others are bold to approbate the virtues of a variety of substances as different in their properties as those who may employ them are in their opinions. Some of our best authorities claim great relief from the use of cold applications, while others favour the employment of hot and emollient fomentations. Hog's lard, and simple molasses, have their advocates; buckwheat and rye meal, mercurial ointment, oxide of zinc, creasote, nitrate of silver, tinct. iodine, and other agents of different names and properties, are pressed into service, with equal claims of restorative power. So far as the experience and observation of your present reporters will justify the expression of their opinion, there are no substances in the whole range of the materia medica of equal value in this complaint with the nitrate of silver and the compound tincture of iodine. Probably the weight of recorded testimony is on the side of the former agent, although the latter has been fairly tried, and proved, by ample experience, to be equally serviceable.

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[illegible] experience proves most conclusively that sedative exter-

cast *them* down to hell, and delivered *them* into chains of darkness, to be reserved unto judgment; 5 And spared not the old world, but saved Noah the eighth *person*, a preacher of righteousness bringing in the flood upon the world of the ungodly; 6 And turning the cities of Sodom and Gomorrah into ashes, condemned *them* with an overthrow, making *them* an ensample unto those that after should live ungodly; 7 And delivered just Lot, vexed with the filthy conversation of the wicked: 9 The Lord knoweth how to deliver the godly out of temptations, and to reserve the unjust unto the day of judgment to be punished. [See 87, 486, 630, 733.]

567. *Punishment everlasting.*

Mat. 25: 41 Then shall he say also unto them on the left hand, Depart from me, ye cursed, into everlasting fire, prepared for the devil and his angels: 42 For I was an hungered, and ye gave me no meat: I was thirsty, and ye gave me no drink. 46 And these shall go away into everlasting punishment: but the righteous into life eternal.

Mk. 9: 43 If thy hand offend thee, cut it off: it is better for thee to enter into life maimed, than having two hands to go into hell, into the fire that never shall be quenched: 44 Where their worm dieth not, and the fire is not quenched. — 14: 21 The Son of man indeed goeth, as it is written of him: but wo to that man by whom the Son of man is betrayed! good were it for that man if he had never been born. [Mat. 26: 24.]

Lk. 3: 17 Whose fan *is* in his hand, and he will thoroughly purge his floor, and will gather the wheat into his garner; but the chaff he will burn with fire unquenchable.

Jn. 3: 36 He that believeth on the Son, hath everlasting life: and he that believeth not the Son, shall not see life; but the wrath of God abideth on him.

Ph. 3: 18 (For many walk, of whom I have told you often, and now tell you even weeping, *that they are* the enemies of the cross of Christ: 19 Whose end *is* destruction, whose God *is their* belly, and *whose* glory *is* in their shame, who mind earthly things.)

2 Th. 1: 7 The Lord Jesus shall be revealed from heaven with his mighty angels, 8 In flaming fire taking vengeance on them that know not God, and that obey not the gospel of our Lord Jesus Christ: 9 Who shall be punished with everlasting destruction from the presence of the Lord, and from the glory of his power.

Jude 6 The angels which kept not their first estate, but left their own habitation, he hath reserved in everlasting chains un-

lows: If it were necessary, I could invoke the testimony of seven or eight proprietors of large plantations, amongst whose slaves I have had numerous cases; and also, some of my medical brethren, who have adopted the same mode of treatment, at least the fundamental part of it, could bear witness to its efficacy: ℞. Red oak bark, Peruvian bark, of each, about 10 lbs. Water, about 30 lbs. Boil for half an hour, strain, and keep for use.

"The red oak is preferable, and the bark of both should be taken in preference from the trunk near the roots, and should be used fresh.

"The above decoction forms the basis of my treatment, but the manner of administering it is of importance. The following is the plan I recommend:—

"As soon as I am called to a person suffering from this disease, I begin by giving a small injection of the cop. decoction, and administering half a tumbler by the mouth. In general, this first injection and dose are retained but a few minutes; as soon as they are rejected, I repeat the dose. This second dose is usually retained a quarter of an hour, and I continue repeating it three, four, or even five times, until the vomiting and purging cease. We generally find that each successive dose remains longer on the stomach, and in two instances only was I compelled to administer as many as six; often a single dose is sufficient. By the above treatment, the vomiting, if it had existed, is first arrested, and then the diarrhœa. Some hours after, the patient is often wholly cured; in a certain number of cases, the skin becomes hot and moist. If I find then that the pulse is quick, and especially if it is full, I bleed, even during the perspiration. Twenty-four hours after the arrest of the purging, I give a pretty strong dose of some drastic purgative. I prefer the purgative of leroz (one tablespoonful and a half), and in addition, I make the patient drink every half hour, half a tumbler of the decoction.

"Once the looseness of the bowels arrested, I act according to circumstances; according to the indications presented; bleeding, baths, sedative draughts, etc.

"When not called upon till the cold stage has supervened, I give as above the oak decoction; but to produce reaction, heat of the skin, and warm perspiration, administer every half hour a tablespoonful of the following mixture: ℞. Laudanum, ʒii; Spts. of Ammonia, ʒiv; Sugar, ℥j; Water, ℥iij. M.

"At the same time, the patient is surrounded with hot bricks. (It is essential, notwithstanding the cramps, not to use friction: the heat and sweating are more certain to remove them than friction), and when reaction comes on, I generally bleed, and act according to indications."

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condition of the blood, experience proves most conclusively that sedative external remedies exercise a controlling power over the cuticular inflammation, which cannot be exerted without them.

The cutaneous disease is occasionally the only morbid change which is exhibited by post-mortem examinations; and there is much reason to believe that the property of contagion, which belongs to the malady, resides in the inflamed and often abraded surface. When the inflammation is seen involving the face and head, rapidly insinuating itself toward the inlets of the brain, with sacs containing purulent matter presenting themselves upon the inflamed surface, and threatening to attack the sensorium, the question is one of the most solemn import, whether we are justifiable in not employing some direct means for its arrest. To cure disease, is our high calling. If we cannot cure, we are bound to guard, as far as we can, those portions of the citadel that are not the seat of disorder, from being overtaken and destroyed. The simultaneous occurrence of erysipelas and puerperal peritonitis, has often been a subject of interesting and useful inquiry among physicians. There has been no puerperal epidemic disease within the knowledge of your committee; but, as evidence of their being great danger of communicating to parturient females the contagious virus of erysipelas, it may be stated that while recently visiting a patient with this disease, and engaged in making applications to the inflamed part, the writer was called to wait upon a female in labour. Under the apprehension that there might be some danger of communicating the disease, the examinations per vaginam were as few and as rapid as circumstances would justify; but the case being very tedious, and requiring the employment of forceps, the hands were necessarily brought into contact with the mucous coat of the vagina, and though they had been thoroughly washed, the patient barely escaped with her life, from an attack of puerperal fever, attended with an offensive discharge from the uterus, and an acrid secretion from the vaginal walls. The infant, at the age of about two weeks, was seized with a severe attack of erysipelas, invading the head and shoulders, and extending down the back. The integument became extremely indurated, the skin assumed a dark, livid hue, and the little sufferer died on the third day, in a state of coma. A similar case occurred not long since, in the practice of another member of your committee, and the infant died with erysipelas about the nates, between the third and fourth week.—*Report of the Standing Committee for the Western District of the New Jersey Medical Society*, Dr. J. Parrish, Chairman; in *the New Jersey Medical Reporter*, for July, 1849.

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Fracture Tables, showing the Results of Treatment in one hundred and thirty-six Cases. By Dr. F. H. Hamilton.—These very interesting tables have been made, the author states, "for the purpose of determining the average results of treatment in fractures. The cases, 136 in number, have been collected from various sources, but in no one instance has a case been admitted which I knew to have been managed by an empiric. A few have been furnished by the Buffalo Hospital of the Sisters of Charity, of the surgical wards of which I have the charge; some from my own private practice; twenty or thirty of the ancient fractures were supplied by the medical students in attendance upon the lectures at Geneva and Buffalo Medical Colleges, in reply to my request that such members of the class as had received fractures would call upon me and permit me to make a record of their cases. These young gentlemen being generally from the better classes of society, it was presumed would have received the best treatment which the country could furnish. The remainder have been obtained casually, or as they have been directed to me for the purpose of examination, by physicians who have themselves treated the cases, and who wished to aid me in my investigations. No case has been sent to me by one physician which had been treated by another. In short, I have sought to make the tables a fair representation of the results of the practice of skillful surgeons, or at least of those who by us are regarded as qualified to practice surgery. If the results are not equal to the expectations of the friends of our science, let them first reflect that no such tables have before been made, and that, whatever opinions they may have entertained, such opinions were not based upon general statistics, but only upon individual experience. I wish them also to examine again their own cases; and if they have relied solely upon the statement of the patients, or of their friends, that no shortening exists, they will find, I think, a great many instances

in which a careful and proper admeasurement will prove that both were deceived. A shortening of half an inch in the lower extremities will frequently produce a manifest halt, while, on the contrary, I have seen a shortening of an inch which was entirely concealed in the gait. But especially are both patients and friends liable to be deceived in relation to the shortening of a humerus, or even of a clavicle.

"If any one shall be so ungenerous as to charge that such may be the results of Erie County surgery, but not of American surgery, I reply, that a very large proportion of the patients have come from other counties and States; some from the hospitals of large cities, and that even foreign hospitals have a respectable representation of bad cases.

"The number of fractures is by no means sufficient to warrant positive inferences, but they certainly ought to be regarded as furnishing approximate evidence. We hope that others will occupy themselves in constructing similar tables, by which the fairness of these may be in some manner tested; for we are certainly as desirous as any one that this branch of surgery should not be disparaged.

"Some will be surprised that I have always omitted to mention whether the fracture was oblique or transverse. This is an important condition by which to determine the ease or difficulty of adjustment and retention. But in very few of the ancient fractures could this be ascertained; and I am ready to confess that, with regard to the femur at least, when recently broken, I am not often able to determine positively whether the fracture is transverse or oblique. But as in children the fracture is generally transverse, while in adults it is more often oblique, the age, which is given in each case, will enable the reader to form some opinion as to the frequency of the one or the other."

The following is a *summary* of the cases:—

Ossa Nasi, three cases; of which none are perfect; there being more or less deformity in each case.

Vomer, one case, with lateral displacement.

Inferior Maxilla, whole number five; all in adults; all compound comminuted; all have united. Three are perfect and two imperfect.

Clavicle, total eighteen. Perfect six; imperfect twelve. Two of the six perfect cases are children under eight years. Fifteen occurred near the junction of the outer third with the inner two-thirds; three near the middle. Four were comminuted; fourteen simple. I believe not more than three or four were transverse. All have united. Eight shortened from a quarter of an inch to an inch.

Acromion Process, one case; united by ligament, but use of arm perfect.

Humerus, fourteen. Twelve simple; two compound comminuted; thirteen united, one not united; three shortened from half to three-quarters of an inch. Five perfect; nine imperfect.

Radius, eight. All simple. Five perfect; three imperfect.

Ulna, nine. Seven simple; two compound. Eight perfect; one imperfect.

Radius and Ulna, thirteen. Eleven simple, one compound, and one comminuted. Two not united. Seven perfect; six imperfect.

Ribs, four. All simple. Two perfect; two imperfect.

Posterior Superior Spinous Process of Ileum, one case, and this left the fragment projecting.

Femur, twenty-eight. Seven through the neck; whether within or without the capsule I have not determined in but one instance. The signs are generally too obscure to make a positive diagnosis. Twenty-six simple; two comminuted. Of twenty broken through the shaft, fourteen are shortened from half an inch to two inches. Only two fractures of the shaft of the femur, out of fifteen cases occurring in adults, are perfect. Probably all the fractures through the neck are shortened, but they were not all measured since recovery.

Patella, three. All united by ligament.

Fibula, four. Two perfect; two imperfect.

Tibia, two. One perfect; one imperfect.

Tibia and Fibula, Twenty-two. Seven simple; fifteen compound, or comminuted, or compound and comminuted. Nineteen united; three not united. Twelve shortened from quarter of an inch to an inch and a half. Five perfect; seventeen imperfect.

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UNIVERSITY OF PENNSYLVANIA, MEDICAL DEPARTMENT.

SESSION OF 1849-50.

The Lectures will commence on Monday, the 1st day of October, and be continued under the following arrangement, to the end of March ensuing.

Theory and Practice of Medicine,	By NATHANIEL CHAPMAN, M. D.
Anatomy,	" WILLIAM E. HORNER, M. D.
Materia Medica and Pharmacy,	" GEORGE B. WOOD, M. D.
Chemistry,	" JAMES B. ROGERS, M. D.
Surgery,	" WILLIAM GIBSON, M. D.
Obstetrics and the Diseases of Women and Children,	" HUGH L. HODGE, M. D.
Institutes of Medicine,	" SAMUEL JACKSON, M. D.

Clinical Instruction at the Pennsylvania Hospital, by the Physicians and Surgeons of the Institution.

Demonstrative Instruction in Medicine and Surgery, twice a week, by the Professors of the Medical Faculty, assisted by W. W. GERHARD, M.D., and HENRY H. SMITH, M. D.

The rooms for Practical Anatomy will be open from October 1st to the end of March ensuing. JOHN NEILL, M.D., Demonstrator.

Amount of Fees for Lectures in the University,	$105
Matriculating Fee (paid once only),	5
Hospital Fee,	10
Practical Anatomy,	10
Graduating Fee,	30

The Commencement will take place early in the following April.

W. E. HORNER, M. D., *Dean of the Medical Faculty.*
386 *Chestnut Street, above Thirteenth, opposite the U. S. Mint.*

Philadelphia, June 1st, 1849.

UNIVERSITY OF NEW YORK.

MEDICAL DEPARTMENT—SESSION 1849-50.

The Lectures of the regular winter course will begin on Monday, October 29th, and be continued to the last of February.

VALENTINE MOTT, M. D., Prof. of Surgery.
GRANVILLE S. PATTISON, M. D., Professor of Anatomy.
SAMUEL H. DICKSON, M. D., Professor of the Practice of Medicine.
MARTIN PAINE, M. D., Professor of the Institutes of Medicine and Materia Medica.
GUNNING S. BEDFORD, M. D., Professor of Midwifery.
JOHN W. DRAPER, M. D., Prof. of Chemistry.

The Surgical Clinique will be held every Saturday by Professor Mott; and the Obstetric Clinique, under the care of Professor Bedford, will commence to furnish cases to matriculated students early in October. The dissecting rooms will open as soon as the weather permits.

Clinical instruction is given at the New York Hospital every day. The Bellevue Hospital, the Eye and Ear Infirmary, and the Dispensaries are also open to students.

The fees for the full Course of Lectures $105. Matriculation fee $5. Practical Anatomy, $5. Graduation fee, $30.

A preliminary and gratuitous course of lectures will be given, as heretofore, in the month of October, commencing on the 8th, and continuing until the regular course begins. JOHN W. DRAPER, M. D., *Secretary of the Faculty.*

JEFFERSON MEDICAL COLLEGE.

SESSION OF 1849–50.

The regular Course of Lectures will commence on Monday the 15th of October, and continue until the first day of March. The ANNUAL COMMENCEMENT for conferring degrees will be held *early in March*, instead of at the end of the month, as heretofore.

ROBLEY DUNGLISON, M. D., Prof. of Institutes of Medicine, &c.
ROBERT M. HUSTON, M. D., Prof. of Materia Medica and General Therapeutics.
JOSEPH PANCOAST, M. D., Prof. of Gen., Descriptive, and Surgical Anatomy.
JOHN K. MITCHELL, M. D., Prof. of Practice of Medicine.
THOMAS D. MÜTTER, M. D., Prof. of Institutes and Practice of Surgery.
CHARLES D. MEIGS, M. D., Prof. of Obstetrics and Diseases of Women and Children.
FRANKLIN BACHE, M. D., Prof. of Chemistry.
ELLERSLIE WALLACE, M. D., Demonstrator of Anatomy.

Every Wednesday and Saturday in the month of October, and during the Course, Medical and Surgical cases will be investigated, prescribed for, and lectured on before the class. During the past year, about *fourteen hundred and fifty* cases were treated, and nearly *two hundred* operations performed. Amongst these were many major operations—as amputation of the thigh, leg, &c., lithotripsy, trephining, the operation for strangulated hernia, and tracheotomy.

The Lectures are so arranged as to permit the student to attend the Medical and Surgical practice and Lectures at the Pennsylvania Hospital.

On and after the 1st of October, the dissecting rooms will be open, under the direction of the Professor of Anatomy and the Demonstrator.

FEES.

Matriculation, which is paid only once,	$5 00
Each Professor, $15,	105 00
Graduation,	30 00

The number of Students during the last session was 477; and of Graduates 188.

R. M. HUSTON, M. D.,
Philadelphia, July 1849. *Dean of the Faculty*, No. 1 Girard Street.

UNIVERSITY OF LOUISIANA—MEDICAL DEPARTMENT.

The annual course of lectures in this institution will commence on Monday, 12th November, 1849, and continue four months.

Theory and Practice,	JAMES JONES, M. D.
Surgery,	WARREN STONE, M. D.
Chemistry,	J. L. RIDDELL, M. D.
Obstetrics and Diseases of Women and Children,	A. H. CENAS, M. D.
Anatomy,	A. J. WEDDERBURN, M. D.
Materia Medica and Therapeutics,	GUSTAVUS A. NOTT, M. D.
Physiology and Pathology,	THOMAS HUNT, M. D.
Demonstrator of Anatomy,	Y. R. LE MONIER, M. D.

Clinical instruction will be given daily at the Charity Hospital, in the various branches of medicine. The Professors being the attending surgeons and physicians of this extensive institution, during the session of the school, have every opportunity of making their lectures practical and thorough.

The Professor of Obstetrics, having under his control the female wards of the Hospital, is enabled to exhibit to the class those diseases peculiar to the sex, and also to furnish to the senior members as many cases of labour as are necessary to give them a practical acquaintance with this important branch.

The facilities for prosecuting the study of Practical Anatomy and Operative Surgery, are unrivalled.

TERMS.

For the ticket of each professor,	$15 00
Demonstrator's ticket,	10 00
Matriculation fee,	5 00
Diploma fee,	30 00

Lectures and attendance in the Hospital, and subjects for dissection, gratuitous.

GUSTAVUS A. NOTT, M. D., DEAN.

UNIVERSITY OF MARYLAND.

The annual course of Medical Lectures will commence on the last Monday in October, at the University Buildings, Lombard Street, Baltimore, and continue until the 15th day of March following.

FACULTY.

Wm. E. A. Aiken, M. D., LL. D., Prof. of Chemistry and Pharmacy.
Nathan R. Smith, M. D., Prof. of Surgery.
Samuel Chew, M. D., Prof. of Therapeutics, Materia Medica, and Hygiène.
Joseph Roby, M. D., Prof. of Anatomy and Physiology.
Wm. Power, M. D., Prof. of Theory and Practice of Medicine.
Richard H. Thomas, M. D., Prof. of Obstetrics and Diseases of Women and Children.
Geo. W. Wiltenberger, M. D., Lecturer on Pathological Anatomy and Demonstrator of Anatomy.

The fee for attendance on the Lectures of each of the Professors is $15. Matriculation fee $5. Graduation fee (including diploma) $20. The ticket of Practical Anatomy is $10, and that of the Lectures on Pathological Anatomy $5. These last are required to be taken but once. Candidates for examination must have attended two full courses in this Institution, or one in this after one in some other respectable school.

With a Hospital, recently much enlarged, and now containing 150 beds attached to the Institution, and consequently under their personal control, the Faculty consider it absolutely essential that every pupil who resorts to the Institution, should avail himself of its advantages. They therefore require, from all candidates for graduation, evidence of attendance upon a course of clinical instruction. The clinical ticket is furnished to all matriculates without charge. Clinical Lectures on Medicine and Surgery are given by the Professors on cases at the Hospital, throughout the session, and the wards visited daily. Surgical operations are frequent, and an abundant opportunity is furnished to students for practical observation and study.

Anatomical *materiel* is abundant, and furnished at a moderate rate. In this respect, it is doubted whether any school in the country can equal the facilities afforded here. The rooms are spacious, well ventilated, warmed, and lighted with gas.

This Institution was chartered in 1807. With large and commodious buildings, an extensive museum, a well-regulated General Hospital, and all the other means adapted for purposes of thorough public instruction, the Faculty see with pleasure, in their yearly increasing classes, the best evidence that a high estimate is placed on the professional education obtained at the University of Maryland.

W. E. A. AIKEN, Dean.

MEDICAL DEPARTMENT OF HAMPDEN SIDNEY COLLEGE,

RICHMOND, VA.

The *twelfth* annual session of this institution will commence on Monday the 23d of October, 1849, and continue until the middle of March ensuing.

R. L. Bohannan, M. D., Obstetrics and Diseases of Women and Children.
L. W. Chamberlayne, M. D., Materia Medica and Therapeutics.
S. Maupin, M. D., Chemistry and Pharmacy.
Charles Bell Gibson, M. D., Surgery and Surgical Anatomy.
Carter P. Johnson, M. D., Anatomy and Physiology.
David H. Tucker, M. D., Theory and Practice of Medicine.
Frederick W. Roddey, M. D., Demonstrator of Anatomy.

Medical and *Surgical Cliniques* will be regularly given in the College Infirmary, and Richmond Almshouse, and ample facilities will be afforded for the study of Practical Anatomy.

Charges.—Matriculation ticket, $5. Professor's fees $105. Practical Anatomy (one course required of the candidate for graduation), $10.

Board, including fuel, lights, and servants' attendance, from $2 50 to $5 per week.

S. MAUPIN, M. D., *Dean of the Faculty.*

COLLEGE OF PHYSICIANS AND SURGEONS, OF THE UNIVERSITY OF THE STATE OF NEW YORK.

The Forty-Third session of the College will be commenced on Monday 15th of October, 1849, and continued until the second Thursday in March, 1850 (commencement day).

Alexander H. Stevens, M. D., LL.D., President of the College, and Emeritus Professor of Clinical Surgery.

Joseph M. Smith, M. D., Professor of the Theory and Practice of Medicine and Clinical Medicine.

John B. Beck, M. D., Professor of Materia Medica and Medical Jurisprudence.

John Torrey, M. D., LL.D., Professor of Botany and Chemistry.

Robert Watts, Jr., M. D., Professor of Anatomy.

Willard Parker, M. D., Professor of the Principles and Practice of Surgery.

Chandler R. Gilman, M. D., Professor of Obstetrics and the Diseases of Women and Children.

Alonzo Clark, M. D., Professor of Physiology and Pathology (including Microscopy.)

Charles E. Isaacs, M. D., Demonstrator of Anatomy.

Fees.—Matriculation Fee, $5; Fees for the full Course of Lectures, $96; Demonstrator's ticket, $5; Graduation Fee, $25; Board, average $3 per week.

Clinical instruction is given at the New York Hospital daily, by the Medical Officers (Professor Smith being one of them), fee $8 per annum; at the Eye Infirmary, without fee; and upwards of 1000 patients are annually exhibited to the class in the College Clinique. Obstetrical cases and subjects for dissection are abundantly furnished through the respective departments.

The Annual Commencement is held at the close of the session; there is also a semi-annual examination in September. The requisites for graduation are—21 years of age, three years of study, including two full Courses of Lectures, the *last* of which must have been attended in this College, and the presentation of a Thesis on some subject connected with Medical Science.

In addition to the regular Course, and not interfering with it, a Course of Lectures will be commenced on Monday, 1st October, and continued until the 15th October. This Course will be *free*.

R. WATTS, Jr., M. D., *Secretary to the Faculty.*

College of Physicians and Surgeons,
67 Crosby Street, New York.

PHILADELPHIA COLLEGE OF MEDICINE,

Winter Course.

The Winter Course of Lectures will commence on 15th October, 1849, and continue until 1st March, 1850. A preliminary course will be given, commencing on Monday, Oct. 1st, 1849, by the following faculty.

James McClintock, M. D., General, Special, and Surgical Anatomy.
Henry Gibbons, M. D., Institutes of Medicine, and Medical Jurisprudence.
Alfred L. Kennedy, M. D., Medical Chemistry.
Rush Vandyke, M. D., Materia Medica and Therapeutics.
Thomas D. Mitchell, M. D., Theory and Practice of Medicine,
Christian C. Cox, M. D., Obstetrics and Diseases of Women and Children.
James McClintock, M. D., Principles and Practice of Surgery.
M. W. Dickeson, M. D., Comparative and Pathological Anatomy.
Richard Burr, M. D., Prosector of Surgery.
N. R. Mosely, M. D., Demonstrator of Anatomy.

Fee for the full Course, $84. Matriculation, paid once only, $5. Graduation, $30. Fee for those who have attended two full courses in other Colleges, $45. Dissecting ticket, $10. Perpetual ticket, $150.

Full course candidates are furnished with the Hospital ticket without charge. Clinical instruction is also given in the College.

The fee for the respective tickets may be paid to each member of the Faculty, or the whole amount may be paid to the Dean, who will issue a certificate which will entitle the student to the ticket of each Professor.

The Spring Course of lectures will commence about the 19th of March, 1850. Degrees will be conferred about 20th July 1850.

For further information inquire of

JAMES McCLINTOCK, M. D., Dean,
No. 1 N. Eleventh St.

Philadelphia, August, 1849.

PFNNSYLVANIA COLLEGE, MEDICAL DEPARTMENT.

NINTH, BELOW LOCUST STREET, PHILADELPHIA.

The Session of 1849–50 will commence on Monday, October 15, 1849, and be continued until the 1st of March, ensuing.

The Faculty is constituted as follows:—

WILLIAM DARRACH, M.D., Professor of the Principles and Practice of Medicine.
JOHN WILTBANK, M.D., Professor of Obstetrics and the Diseases of Women and Children.
HENRY S. PATTERSON, M.D., Professor of Materia Medica and Therapeutics.
WILLIAM R. GRANT, M.D., Professor of Anatomy and Physiology.
DAVID GILBERT, M.D., Professor of the Principles and Practice of Surgery.
WASHINGTON L. ATLEE, M.D., Professor of Medical Chemistry.

Clinical instruction at the Pennsylvania Hospital, Pine Street, provided for all second course students, at the expense of the Faculty. Fees: Matriculation (to be paid once only), $5 00; for each ticket, $15 00; Graduation, $30 00.

The Registrar's address is No. 92 Arch Street, Philadelphia.

HENRY S. PATTERSON, M.D., *Registrar.*

TRANSYLVANIA UNIVERSITY—MEDICAL DEPARTMENT.

The Thirty-Second Session will open on the first Monday in November next, under the direction of the following faculty, viz.:—

BENJ. W. DUDLEY, M.D., Professor of the Principles and Practice of Surgery.
ROBERT PETER, M.D., Professor of Chemistry and Pharmacy.
JAMES M. BUSH, M.D., Professor of Special and Surgical Anatomy.
SAMUEL ANNAN, M.D., Professor of Theory and Practice of Medicine.
ETHELBERT L. DUDLEY, M.D., Professor of General and Pathological Anatomy and Physiology.
HENRY M. BULLITT, M.D., Professor of Materia Medica and Therapeutics.
WILLIAM M. BOLING, M.D., Professor of Obstetrics and the Diseases of Women and Children.
H. M. SKILLMAN, M.D., Demonstrator of Anatomy.

The cost of a full course is one hundred and five dollars, invariably in advance. The Matriculation and Library ticket is five dollars. The Dissecting ticket, ten dollars. The Graduation Fee is twenty-five dollars. Boarding and lodging from $2 to $3 per week.

ROBERT PETER, M.D., *Dean of the Faculty.*

Lexington, Ky., June 27, 1848.

PRIVATE OFFICE INSTRUCTION.

The Subscribers receive Students into their office for either the whole, or part of their period of study.

Their pupils receive examinations upon the various branches of medicine *daily, throughout the year*, with the exception of the usual Summer recess. They also have access to the full Course of Summer Lectures at the Philadelphia Medical Institute; likewise to the daily Clinical Course at the Pennsylvania Hospital, from April to November; and enjoy the usual facilities of an office—such as Books, Plates, Preparations, &c.

Fee, for the whole term of study (3 years), in advance, - - - -	$250
" " one year, - - - - - - - - - - - - -	100

JOHN NEILL, M.D., *Demonstrator of Anatomy in the University of Penna.*
JOHN J. REESE, M.D., *Lecturer on Materia Medica in the Phila. Med. Institute.*
Philadelphia, April, 1849.

MASSACHUSETTS MEDICAL COLLEGE.

The Medical Lectures of Harvard University will commence at the Massachusetts Medical College in Boston, on the first Wednesday in November.

Obstetrics and Medical Jurisprudence by - -	Walter Channing, M.D.
Materia Medica and Clinical Medicine by - -	Jacob Bigelow, M.D.
Theory and Practice of Medicine by - - -	John Ware, M.D.
Chemistry by - - - - - - -	John W. Webster, M.D.
Pathological Anatomy by - - - - -	John B. S. Jackson, M.D.
Anatomy and Physiology by - - - -	Oliver W. Holmes, M.D.
Principles and Operations of Surgery by - -	Henry J. Bigelow, M.D.

Clinical Lectures at the Hospital three times a week by the professors of Clinical Medicine and of Surgery. Surgical operations are very numerous. The safe and effectual practice of etherization is taught in this School. Practical Anatomy is amply provided for by new and liberal arrangements.

Fees for the whole Course, $80. Matriculation, $3. Dissecting Ticket, $5. Graduation, $20. Hospital and Library gratuitous.

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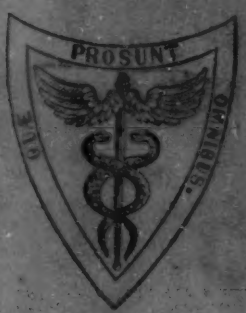

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